

Caring Architecture

- The Design of a New Building for Children and Adolescent Psychiatry in Gothenburg



Master Thesis

Chalmers School of Architecture

Anita Mustonen

Examiner: Peter Fröst
Tutor: Christine Hammarling

Caring Architecture

- The Design of a New Building for Children and Adolescent Psychiatry in Gothenburg

Anita Mustonen

Examiner: Peter Fröst
Tutor: Christine Hammarling



CHALMERS

Master Thesis
Chalmers School of Architecture
Department of Architecture and Civil Engineering
Architecture and Urban Design, MPARC

June 2017

Caring Architecture

- The Design of a New Building for Children and Adolescent Psychiatry
in Östra Sjukhuset in Gothenburg

Anita Mustonen

© Anita Mustonen 2017

Chalmers School of Architecture
Department of Architecture and Civil Engineering
412 96 Göteborg
Sweden

Cover: Illustration of a patient room

Göteborg 2017

Abstract

The number of children and adolescents in Sweden that are admitted to a hospital for psychiatric care have been increasing for the past 20 years. Meanwhile, the children and youth psychiatry in Östra Sjukhuset in Gothenburg has too small and dysfunctional localities. This Master Thesis is about the design of a new building for them.

Västfastigheter has initiated the process for a new building for children and adolescent psychiatry, and this project has run parallel of the pre-study in that process. The building will contain both inpatient and outpatient care, as well as administration and staff areas.

A theoretical framework for the design has been made by searching literature and analyzing case studies. During the process, there has been meetings with people working with children and adolescent psychiatry in Östra Sjukhuset where they have told about their wishes and I have presented and discussed my sketches. Those meetings have helped in

forming the program and have given input to the sketch proposal in the process.

The concept for the building is to work with places for different levels of engagement with your surroundings. The building should allow for patients to sit alone, sit on the side of an activity and look at what's happening or to take part in the activity. This have been achieved through designing the building so that you can sit in a private place and watch things that happen elsewhere in the building, divide the patients into small groups, and have different sizes of dayrooms to choose between.

Through this project I want to give an example of how to design a healthcare facility for children that supports their healing process. Hopefully some of the ideas from my design will stick with the staff group I've met with and inspire them in the process for a new building.

My thanks

During this semester there are many people that have helped and supported me in different ways, and I would like to send a big thank you to the following:

My tutor Christine Hammarling for helping me in my process, coming with valuable input and pointing at things I've either forgotten, or chosen not to see.

My examiner Peter Fröst, for valid comments in the seminars and for always answering quickly if I had questions.

Erik Tari and Henrik Hagejård for all the comments, smalltalk and input during the project, and for always putting up with me when I took a break from my project by disturbing you.

The group for the pre-study at BUP Östra Sjukhuset; Reino Moberg, Kenneth Bergersson, Marie Carlsson, Camilla Ersdal and Suzanne Ågård, for all the input from the meetings and for being engaged and positive about my work.

Saga Karlsson and Stefan Lundin for good comments on the final seminar. The comments were truly inspiring for me and they (almost) made me want to work another semester on the project.

Erik Hedborg for good comments on the mid-term seminar, and interesting discussions during the process.

Håkan Sigurdsson for a very interesting discussion at Universeum that I have thought about throughout the project.

Philip Rasko for being there when I came home from school and wanted to think about something else, and for understanding how demanding a master thesis process is.

My family for always asking me how it is going, believing in me and congratulating me on progress.

And finally, all the students in my corridor for good input and for bearing with me when I asked about your projects.

Anita Mustonen
June 2017

Content

Introduction

Background	6
Purpose and aim	6
Research question	7
Method	8
Reading instruction	9
Terms	9

Theory

A healing environment?	10
Evidence-based design	11
Design for psychiatry	12
Design for children and adolescents	14
Stages of development	15
Summary: theory	18

Case studies

Psychiatry Östra sjukhuset	20
Psykiatrins hus	24
Slagelse psykiatri	28
Sofieskolen	32
Summary: case studies	34

Östra Sjukhuset

Östra sjukhuset	36
The buildings	38
Traffic and flows	39
visions for the future	40
BUP in Östra sjukhuset	41

Design proposal

The program	42
The site	44
Building form - step by step	46
Site plan	48
Departments in BUP	50
Arrangement of departments	51
Groundfloor (floor 0)	52
Floor 1	54
Floor 2	56
Emergency department	58
Waiting areas	59
Ward unit	62
Patient room	64
Activity square	66
Sections	68
Facade	70

Conclusion

Conclusion	72
Reflection	72

References

References	74
List of figures	76

Introduction

Background

In Sweden today mental illness is considered one of the biggest health issues (Socialstyrelsen 2016). The number of children that are submitted to psychiatric care for depression has increased during the last 30 years and the number of patients in children and adolescence outpatient care has increased since 2005 (Cederblad 2013). While mental illness is increasing, the stigma around it is still very present. Even though three quarters of the population are estimated to be in close contact with mental illness in some way, people are still scared to talk about it and the care is worse than for many other diseases (Riksförbundet Hjärnkoll).

To give psychiatric care a natural and worthy place in our hospitals might contribute to encourage people to seek care, and make them feel like they are accepted in the society.

BUP Östra Sjukhuset

Children and Youth Psychiatry (Barn och Ungdomspsykiatri [BUP]) at Sahlgrenska University Hospital in Gothenburg have two departments in Östra Sjukhuset and three departments on other locations in the city. The facilities in Östra Sjukhuset are too small and not designed to suit today's ideas for psychiatric care, and collaboration between the departments in the hospital site and the other departments is difficult since there is such a distance between them.

Purpose and aim

The aim with this project is to design a new building for Children and Youth Psychiatry where all of its departments can exist in the same building at Östra Sjukhuset in Gothenburg. Focus is on designing an environment where children and their relatives can feel safe and get recover from illness.

The purpose with this is to show an example of how to create a healing environment for children and adolescents in the need of psychiatric care. Another purpose with this project is to give the staff at BUP Östra Sjukhuset an alternative project to the one that is being developed in a pre-study for a new building for them.

Research question

Main question

How can we design healing environments for children and adolescents in psychiatric care?

Sub-questions

How can a new building look like that will be added to the existing structure of a modernist hospital?

Delimitations

Focus in the design proposal will be on the areas for the patients. Areas for staff will be designed in an overview scale, but will not be studied more thoroughly.

The design project focuses on the built part of the facility and will not go deep into furniture or equipment.

The construction will be studied just briefly to see how it affects the building, but for some details that are of interest for the design.

Regarding the outdoor areas some ideas will be shown, but not drawn in detail.

Method

Dialogue

This project runs parallel to a pre-study for a new building for BUP in Östra Sjukhuset. This has made it possible for me to participate in meetings with representatives from BUP, a representative from Västfastigheter, and an architect making the pre-study. The first of these meetings were mainly about forming the program for the building and learning what the departments wanted. Later on I had the opportunity to present and discuss my sketches with the staff group, and to adapt my design after their comments.



Literature study

My literature study will include reading about evidence based design, healthcare architecture, psychiatry in general and children and adolescents psychiatry, as well as some about children's development.



The sources have been found using mainly Chalmers Library's tool Summon, with some use of Google Scholar to find sources that are referenced in reports I've read that couldn't be found in Summon. The references include books, printed reports, digital reports, scientific articles, newspaper articles and websites.

Case studies

To find examples of how to achieve certain qualities and learn more about how to design for psychiatry I have looked at some case studies. Four of them are presented in the report, chosen because they have interesting elements that I've implemented in some way in the design.

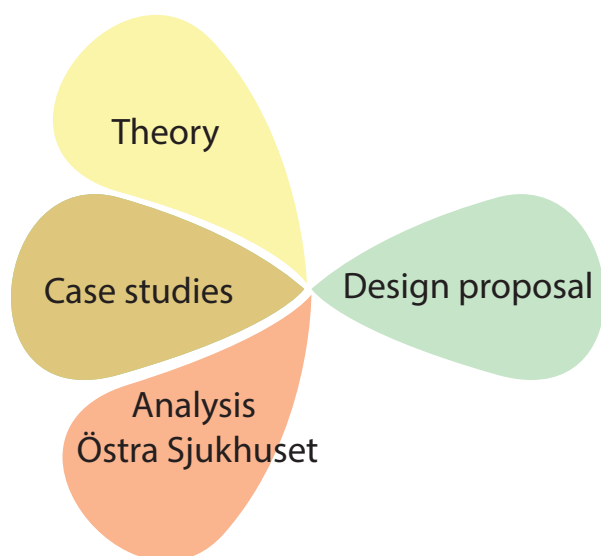
I have used case studies as a way to get more knowledge about the program for a building for psychiatric care as well as a reference for room sizes and placement of functions.

Sketching

Throughout the project I have used sketching as a tool, both by hand and digital sketches using Revit. The sketching has been a way to take the process forward and to create a base for discussing my project with others. The sketching have influenced my search for literature in the way that I've tried to find literature about things I wasn't sure how to design.



Reading instruction



The report is divided in two main parts. One which explains the theoretical framework on which the design proposal is based and one that present the design proposal. The theoretical part is divided in three parts; a summary of the literature study, a presentation of four case studies and a presentation of Östra Sjukhuset.

Each part of the report can be read separately, but preferably it's read from cover to cover. In the end of each of the first three part is a summary that sums up important elements that will be used in the design.

Terms

Children and adolescents psychiatry

Psychiatric care for everyone below the age of 18.

The abbreviation BUP (Barn och Ungdomspsykiatri) will be used in the report.

Oupatient care

Healthcare that does not require the patient to stay overnight.

Inpatient care

Healthcare where the patient is admitted to the hospital and stay overnight.

Theory

A healing environment?

A very brief search of the websites of some Swedish and Danish architecture firms that do healthcare buildings, show that it is obvious that the term “healing environment” is a bit of a buzz word in Scandinavia today. In many of the project descriptions for new healthcare buildings, and most of the new buildings for psychiatry, the term healing environment or some equivalent to that was used, often in combination with health promotion and patient centered care.

Healing environment can mean many things. In evidence based design it is about the things we can measure and put numbers on, in a salutogenic approach it is about creating an environment that is easy to read and orientate in, as well as being aesthetically pleasant. In the anthology *Architecture as Medicine* (From, L. Lundin, S. 2009) Lena Walther states in the chapter *Six little houses* (pp 21-32) that a healing environment should, among other things, contain stimulation of all senses, have a connection to nature, minimize stress factors, have sufficient work spaces, include spaces for spiritual issues, show a varied architecture and display art in some form. Most of these factors have evidence that they actually do affect healthcare outcomes, these will be treated in the paragraph about evidence-based design. Stefan Lundin discuss the term healing architecture in his licentiate thesis *Evidence, Intuition, Dialogue* (Lundin, S. 2015) and argues that it cannot be based solely on evidence, since there is not enough to be found, but that the architect must use his/hers intuition, meaning more or less conscious knowledge that has been developed over time. The dialogue with the client is also important in achieving a healing environment, since it is the client that knows the functionality of the care the best.

Experiences and new research show a strong connection between the physical healthcare environment and the wellbeing and recovery of the patients.

- Quote from White Architects' description of the new psychiatry building in Södra Älvsborgs Sjukhus. Translated from Swedish

(...) the building should provide the material conditions for a dignified and healing environment(...)

- Quote from Liljewalls Architects' description of Rågården, a new building for forensic psychiatric care in Gothenburg. Translated from Swedish

The supporting ideas in the project are (...) Healing architecture (..)

- Quote from Karlsson Arkitekter's description of the new psychiatric hospital in Slagelse. Translated from Danish

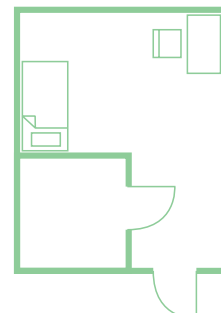
Evidence-based design

Evidence-based design [EBD] in healthcare is about making informed decisions in the design process. The evidence in the design comes from research and studies that have found relations between certain design elements and healthcare outcomes.

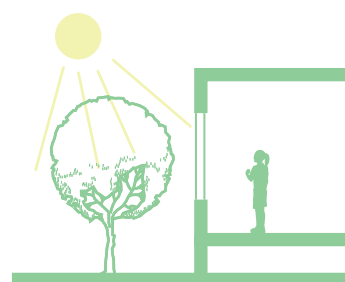
In the paper A Review of the Research Literature on Evidence-Based Healthcare Design (Ulrich, 2008) Ulrich et al. identify eleven elements of which there are evidence that they affect the outcomes of healthcare. Some of these, like ceiling lifts and noise-reducing finishes might be too specific to apply to this project, but many of the others are of high relevance.

Single bed rooms and access to daylight improve patient sleep, reduce patient stress and increase the patient satisfaction, and a view of nature can reduce stress and depression as well as the time the patient spend in the hospital (Ulrich 2008).

The Center for Healthcare Architecture [CVA] at Chalmers published a paper called Evidensbas för vårdens arkitektur 1.0 (Evidence-base for healthcare architecture 1.0) written by Roger Ulrich. In this report eight areas on which there are evidence for how architecture affect outcomes are identified. Those are single-patient rooms, patient safety, daylight, working environment, way-finding, positive distractions, sound-environment and attractiveness.



Single patient rooms compared to having shared rooms can increase patient satisfaction, increase patient privacy, improve patients' sleep and reduce patients' stress.



Access to daylight and views to nature both have the effect that they can reduce the length of stay for patients, reduce patient stress, improve patients' sleep and reduce depression.



Positive distractions such as nature and art, as well as an attractive environment in general have been shown to increase patient satisfaction with the care given, and reduce anxiety.

Design for psychiatry

When designing for psychiatry there are many things to think about. The patients can have a distorted view on reality, need a lot of personal space, want to withdraw and be alone or need social training to adapt to the world outside the hospital. Golembiewski (2010) states that a sense of coherence [SOC] is essential when designing for psychiatric care. SOC can be achieved from working with comprehensibility, meaning that the building should be easy to read and understand; manageability, giving the patients chances to influence his/hers surroundings; and meaningfulness, which might be reached through an aesthetically pleasing environment and sufficient space for visitors to enhance the social support for the patient. Golembiewski (2010) also recommends using natural materials and trying to create homelike environments so the patients feel that they are in a familiar place.

A study conducted in a psychiatric ward by Beauchemin and Hays (1996) show that patients that stayed in a room that got direct sunlight during part of the day had on average a 13% shorter stay than patients in rooms that lay in shadow all day.

Gradients of engagement

The supporting triangle describes the different levels of activities that a person can take part in depending on his or hers state of well-being (Bengtsson & Grahn 2014).

In a healthcare project this can be used as guidelines for what kind of places to create in the building. In the patient room the inward-directed engagement could take place in the bed, but also on a bench by the window with a view to the nature outside, or by a desk where handicrafts or other alone activities can take place. There can also be emotional engagement to the surroundings by looking up at what happens outside or open the door to the corridor and listen to the life in the department. Active engagement can be to work at the desk or talk to someone in the sofa.

In the common areas of the ward there will also be places for different levels of engagement. Places to sit alone in the garden, a winter garden, activity rooms and areas for hanging out with each other.

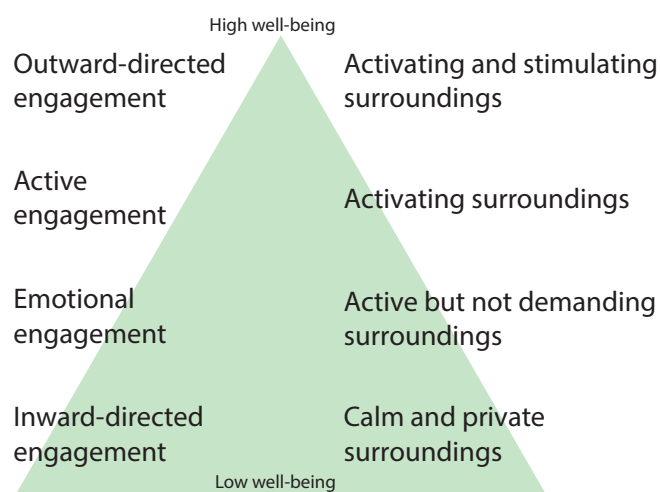


Figure 1. The supporting triangle. (Bengtsson & Grahn 2014)

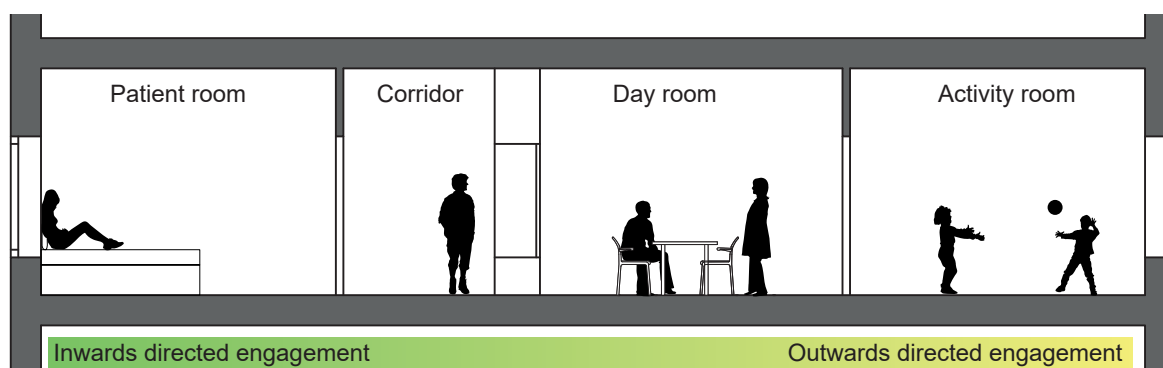


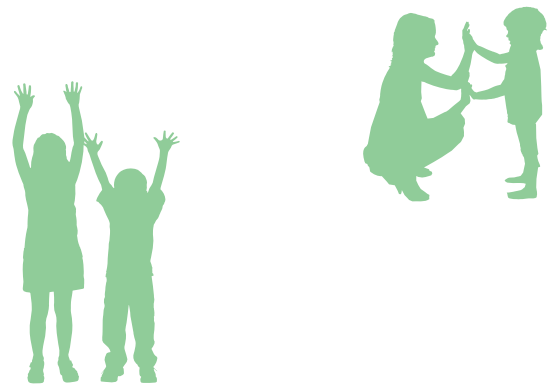
Figure 2. Section illustrating how the gradient can look like in a building. Made by the author

Design for children and adolescents

As childhood is a period of great developments for a person children of different ages have very different needs. Younger children are more dependent on their parents while teenagers might want to be more independent and regarded as adults. During a visit to Universeum, a science center for children and adults in Gothenburg, I had a discussion with Håkan Sigurdsson, scientific leader and project manager at Universeum. We discussed the differences between different ages. Small children can sometimes be very focused for a quite long time, but then suddenly they get bored and need something else to do, otherwise they might start running around making noise or playing with trashcans. When discussing how to work with teenagers Håkan said that teenagers want to be met as adults so if you design for adults, teenagers most often like it better than if you try to direct the design specifically to them. Universeum has recently changed their target group according to this, earlier it was Children and Youth, now it's Children and Adults, since teenagers are best met by being met as adults.

Håkan said that it is not easy to try to figure out before hand what children might like. Universeum had an exhibition when I was there about health where the most popular part was to see how long you could hang from a bar, a very simple and cheap thing to build, but much more liked than more complicated stands.

Håkan talked about the teenage years as being difficult since a teenager is still in many aspects a child but wants to be an adult, but it's good to try to encourage the childish sides sometimes. He had an example of an area where you could build large structures using different forms of building blocks that was very popular among teenagers, as long as they were first to the site. If the area was occupied by seven-year-olds the teenagers wouldn't play there in fear of appearing childish, the same would happen if there would be older children in the room. To build things and manipulate their surroundings in a noticeable way seems to be fascinating to children of all ages, including those well past the age of 18.



Stages of development

Children of different ages have very different needs and since children of all ages come to BUP the facility must fit all their needs.

Following development stages are based on Piaget's theory of cognitive development as it is presented in Maria Nordström's research report "*Barns boendeföreställningar i ett utvecklingspsykologiskt perspektiv*" (Nordström, 1990) and a slideshow from a lecture held by Helena Fagerberg Moss in the Centre for Healthcare Architecture's theme day "*Liten blir stor - om barnets utveckling och behov*" (Fagerberg Moss, 2014).

Age 0 - 1,5

Experience the world with all senses

Object constancy

Dependent on parents

Forming bonds with people

Trust

Architectural challenges:

Engage all senses

Create interesting views on crawling level



Age 1,5 - 4

Rapid development

Develop a language

Own will

Vivid imagination

Pretend play

Rooms are defined by what happens there

Architectural challenges:

Something to do while waiting

Stimulate imagination



Theory

Age 4-7

Concrete thinking

Questioning

Rooms are defined by what you can do there

Understanding of inside/outside

Finding an identity

Architectural challenges:

Stimulate creativity

Allow for play



Age 7 - 12

Internalized actions

Logic thinking

Analyzing

Understand how spaces relate to each other

Social

Awareness of other's perspectives

Architectural challenges:

Easily readable structure

Places for play, places for thinking



Age 12+

Abstract thinking

Awareness of own thinking

Relationship to parents change

Architectural challenges:

Create a feeling of dignity

Avoid childish environments, wants to identify more with adults



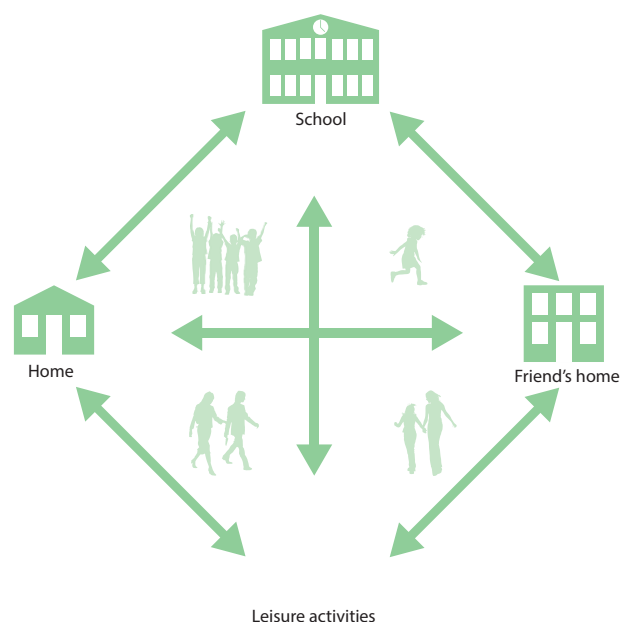
Creating a daily life

In daily life children move between different places. They wake up at home, go to school, then maybe some leisure activities or a friend's house and then home again (Rasmussen 2004). When a child is in a hospital though, this part of everyday life easily gets lost since everything is in the same building. To get to school you go through a corridor, identical to the one where your room is, and same thing when you get to some kind of activity. This could be avoided if each part gets its own expression and if the borders between different parts are clear.

In the building there will be an activity square which should have access to the outdoors, and be easily available both for people visiting the outpatient departments as well as the patients staying in the wards.

The wards should feel more like a home than a hospital, without long corridors, and with several spaces to move freely between. To make it feel safe there should be a good overview over the ward, but without eliminating places to withdraw and sit alone.

The school should be placed so that it is possible to have a small schoolyard for it, and that the patients can go out of the main door, and enter somewhere else to get into the school. This is important as it gives the patient a small break from being in the hospital, and it makes the school feel like something different than the rest of the departments.

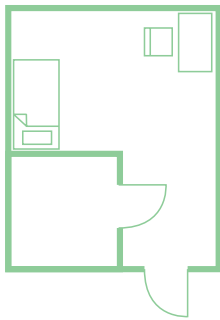


Places for children

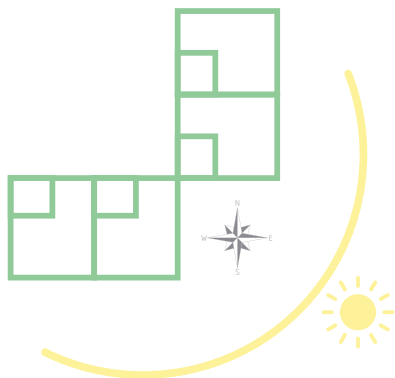
Rasmussen (2004) argues that there is a difference between places for children, e.g. places that adults have designed for children, and children's places, meaning places that children make their own. An example of a place for children could be a playground, while a child's place might be a tree that is good for climbing (Rasmussen 2004). Rasmussen argues that "a place, including 'places for children', becomes a 'children's place' after a child connects with it physically" (p 165). To enhance the possibility that children will make a place their own, the text takes up two criteria that can be used; to invite to movement and to allow for changing the environment in some way, like building structures or putting up pictures. In a hospital setting the child's choice of place is limited and all places around him/her are designed by adults. Therefore it is very important to try to design places that children can connect to in a hospital setting.

Summary: Theory

Following illustrations show elements and ideas picked up in the literature study that will be incorporated in the design.



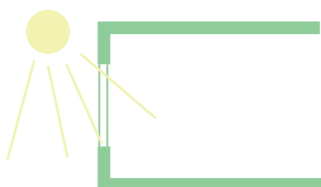
Single patient rooms



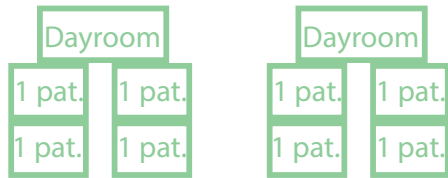
Patient rooms should face south or east



Patient rooms should have windows towards nature with greenery



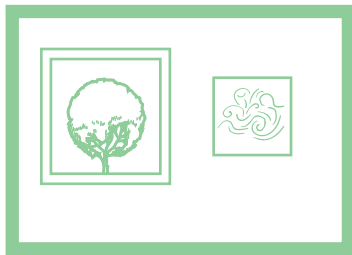
Make good use of daylight in the building



Groups of 3-5 patients around a small dayroom



Groups of 6-10 patients make a ward that share a bigger dayroom, dining and kitchen



Work with positive distractions such as nature views and art



Create places where patients can sit and watch activities without taking part



Create places that the patient can make their own in some way, like building structures, changing colors or putting up photos and drawings.

Case studies

Psychiatry Östra sjukhuset



Figure 3. The psychiatric clinic at Östra Sjukhuset
Photo taken by the author

Facts

Location:	Göteborg, Sweden
Year:	opened in 2009
Architect:	White
Area:	18800 m ²
Patient rooms:	120

The building for psychiatry in Östra Sjukhuset in Gothenburg has been awarded with the Healthcare Building Prize 2007. It is designed with the patient in focus with small patient groups, good daylight in all patient rooms, atriums in the common areas and easy access to an enclosed yard.

There are lots of wooden materials in the building and the yards are full of green plants. It is a low building, 2-4 floors to keep the connection to nature for all wards.



Figure 4. Atrium in the ward unit
(White Architects)

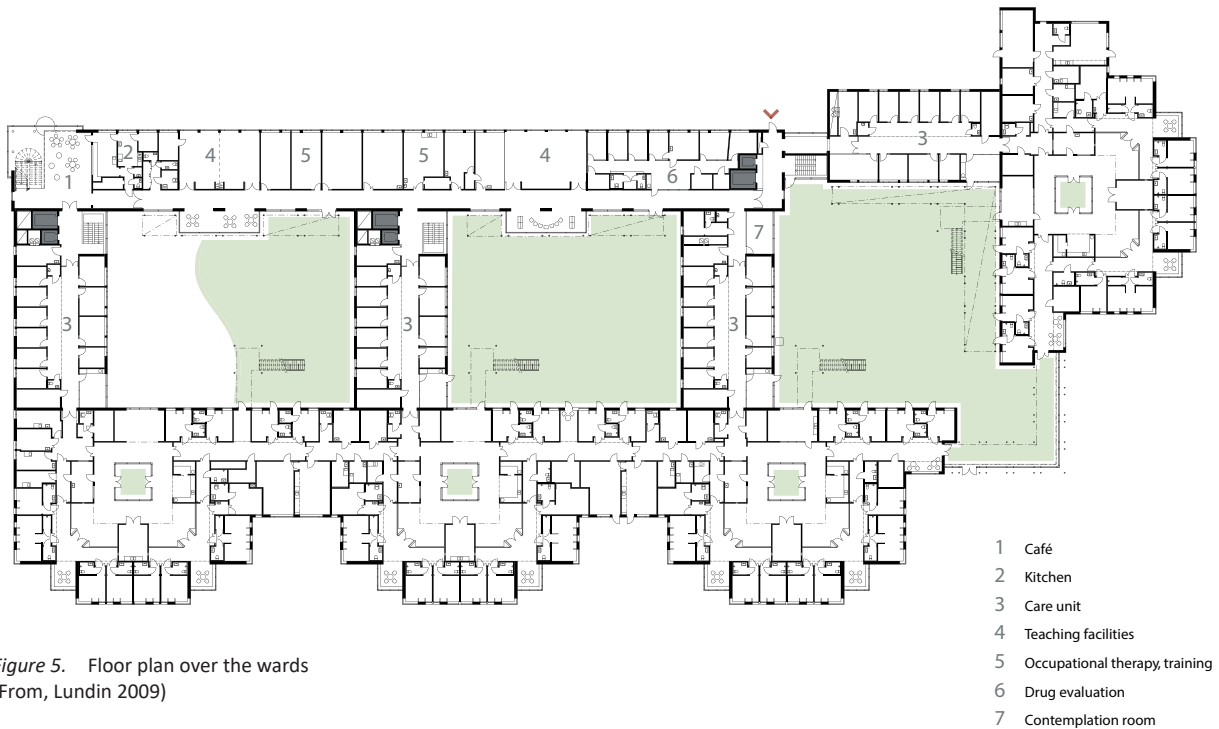


Figure 5. Floor plan over the wards
(From, Lundin 2009)

Building layout

The entrance for the building is in the north-west corner.

Along the east side in the first two floors are the emergency department, floor 3-5 are wards, administration and different kinds of therapy rooms.

The wards are placed along the south and eastern facade, and together with a slim volume towards north they enclose three big yards that the patients have access to.

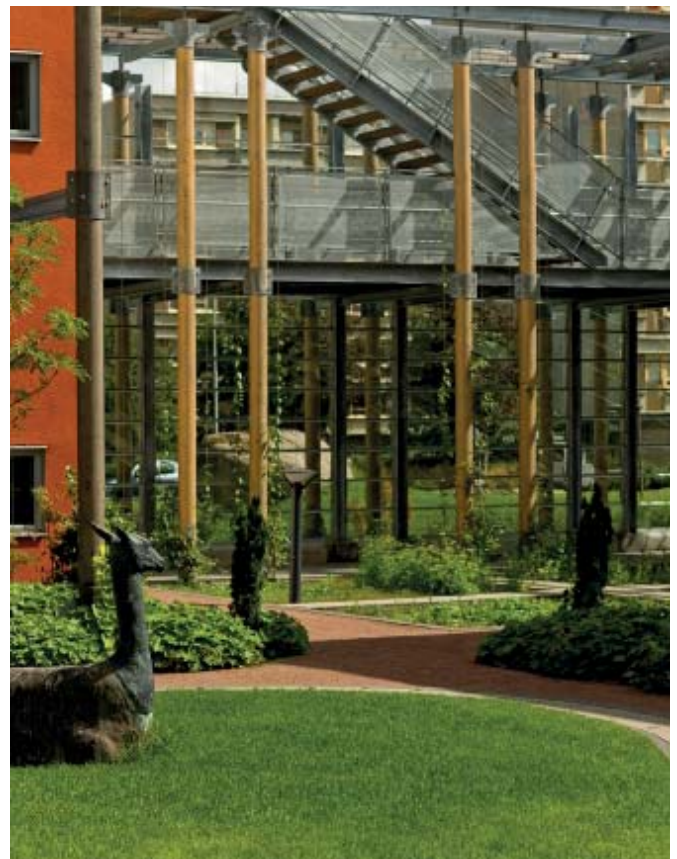


Figure 6. Yard in the psychiatric clinic
(White Architects)

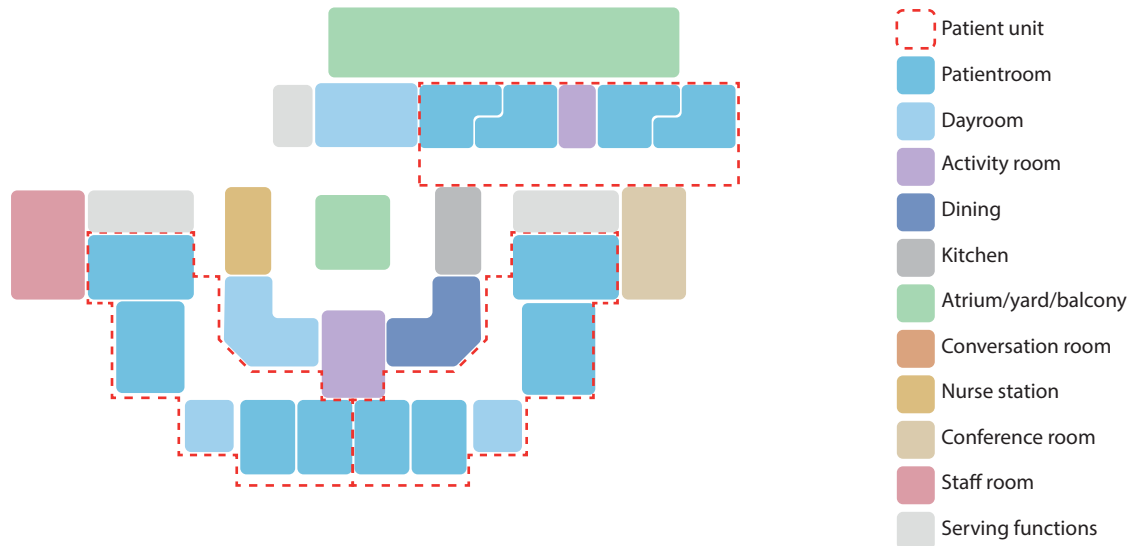


Figure 7. Illustration of the ward layout

Ward layout

The wards are arranged in departments of 14 patients, which are then divided into smaller groups of three to five patients that share a small dayroom.

The patient rooms are arranged around a “heart” to minimize the corridors and give a central point to the department. In this “heart” is a nurse station, dining area with kitchen, a bigger dayroom and an activity room.

From the common areas the patients can reach an enclosed yard.



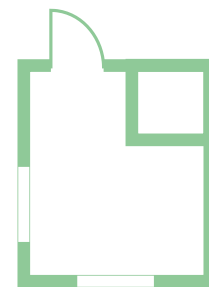
Figure 8. Small day room in the ward unit
(White Architects)

My inspiration from this

The main idea from this project that I will take into mine is to work with different steps of social engagement in the building. The patient can sit alone in his/her room, but with an open door look at what happens in the common areas, or look at the yard through the window. The next step is the day room shared by four patients, and from that you can advance into the big common area, or even into the yard that is shared by several units.

I also like how they have worked with light and that many patient rooms have light from two directions.

The small atrium in the common areas is a good way to bring light into a quite thick building.



Psykiatrins hus



Figure 9. Main entrance to Psykiatrins hus.
(Åke E:son Lindman)

Facts

Location:	Uppsala, Sweden
Year:	opened in 2013
Architect:	Tengbom
Area:	33 000 m ²
Patient rooms:	104

Psykiatrins hus, the new building for psychiatry in the hospital in Uppsala has been praised by architects and criticized by patients. The positive comments mean that the glazed building will break the stigma around psychiatric illness (Tengbom), while critic patients say that the glazing makes you too visible in the building and that the building is cold and impersonal (Uppsala Nya Tidning, 2013).

The main idea is patient centered care and to break the stigma around psychiatric care through making an open building.

The entrance hall is a high open atrium with water mirrors, a library open for the public and some seating. From the atrium you can reach the rest of the floor where the care facilities are.

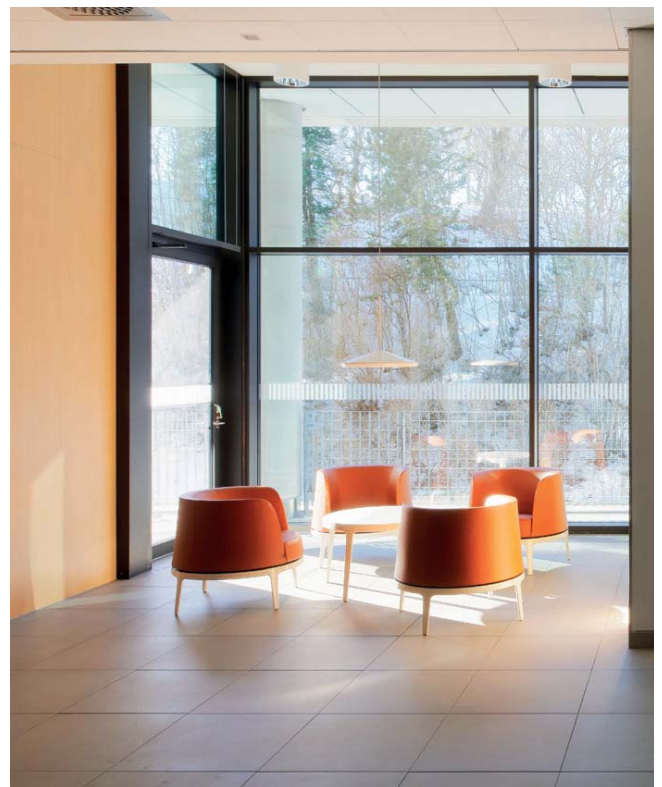


Figure 10. Main entrance to Psykiatrins hus.
(Åke E:son Lindman)



Figure 11. Floor plan from the competition proposal by Tengbom Architects (Tengbom Architects)

Building layout

Each floor contains both outpatient and inpatient areas, as well as staff administration and pause areas. The administration is gathered in the middle of the building towards the atria, while patient rooms and exam rooms are along the outer facades.

In the outpatient care the patient waits in a waiting area with big windows, and the counseling rooms are placed between two corridors to give them doors from two ways to eliminate the risk of staff being cut off from the exit.

Waiting areas are placed along the facade in a long space which gives the patients possibility to choose to sit away from others, but still by a window.

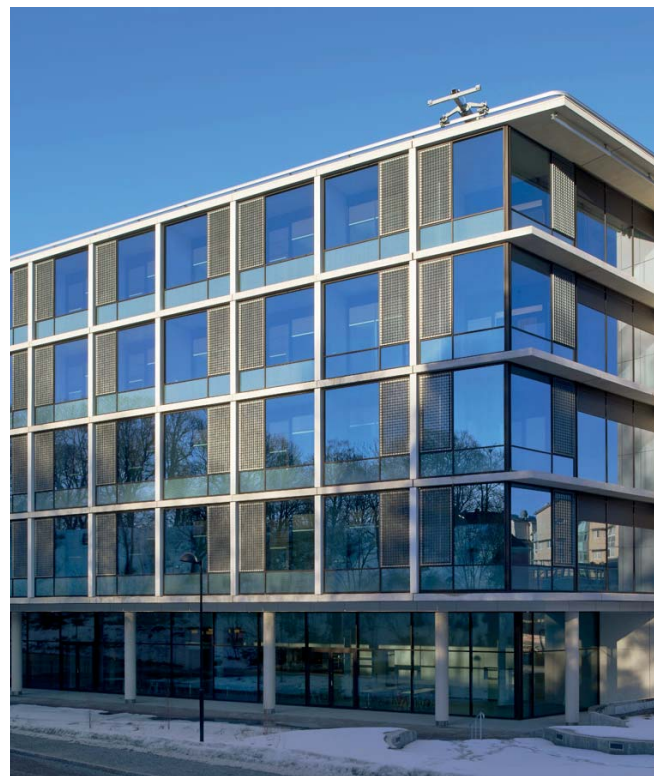


Figure 12. A view of the building showing the balconies in the patient rooms (Åke E:son Lindman)

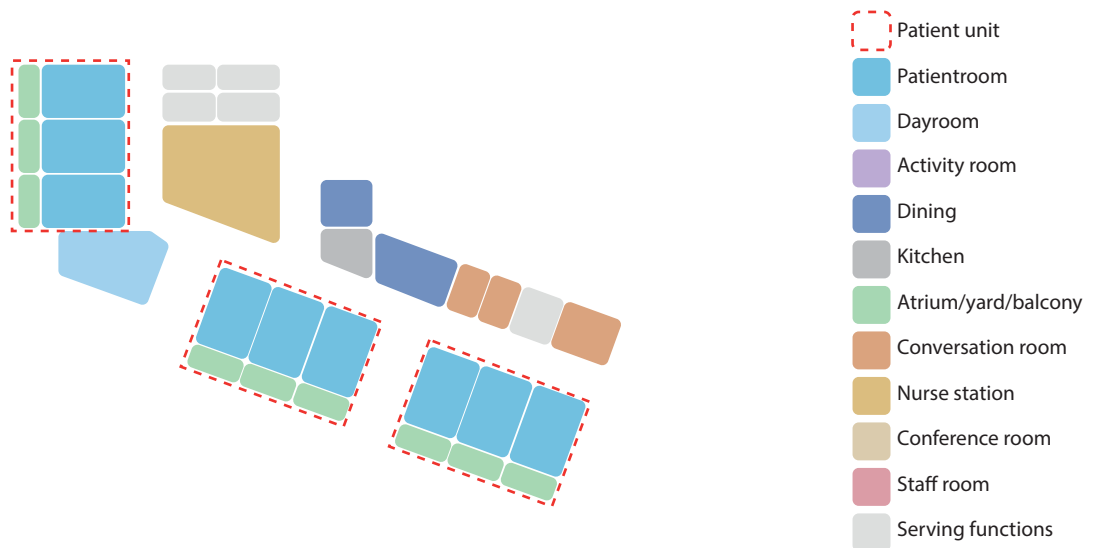


Figure 13. Illustration of the ward layout

Ward layout

In the wards the patient rooms are arranged along the facade over a corner, with a nurse station placed in the corner for good overview.

The common areas and conversation rooms are mainly placed with windows to the atria.

Since this building is high there is no possibility to get access to a courtyard from the ward, but each patient room has a small private balcony to give them some form of outdoor area.



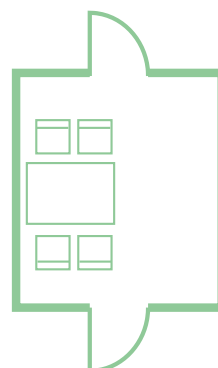
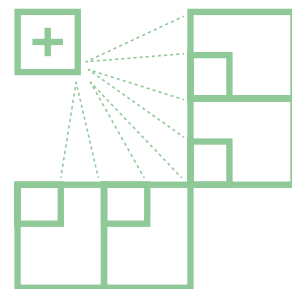
Figure 14. The main atrium in psykiatrins hus
(Åke E:son Lindman)

My inspiration from this

From this project I take inspiration from the idea of having both inpatient and outpatient care on each floor, but in different parts of the building.

The team station is centrally placed with good overview and the patient rooms are directed out from the building.

To give some counseling rooms two doors provide better security for staff since they can't be blocked from the exit by aggressive patients.



Slagelse psykiatri



Figure 15. Slagelse Psykiatrisygehus
(Architectural Review)

Facts

Location:	Slagelse, Denmark
Year:	Opened in 2015
Architect:	Karlsson Architects and Vilhelm Lauritzen Architects
Area:	44 000 m ²
Patient rooms:	194

The psychiatric hospital in Slagelse is a result of a competition which Karlsson Architects won with the proposal “The park in the house, the house in the park” (Parken i huset - huset i parken). The building is one of the first new psychiatric hospitals in an extensive work on improving buildings for psychiatric care in Denmark (Godt Sygehusbyggeri, 2017). Focus in the project where to design healing environments for psychiatric care by working with a low scale, a well-worked concept for natural and artificial light and a care for materials and details (Karlsson Arkitekter).

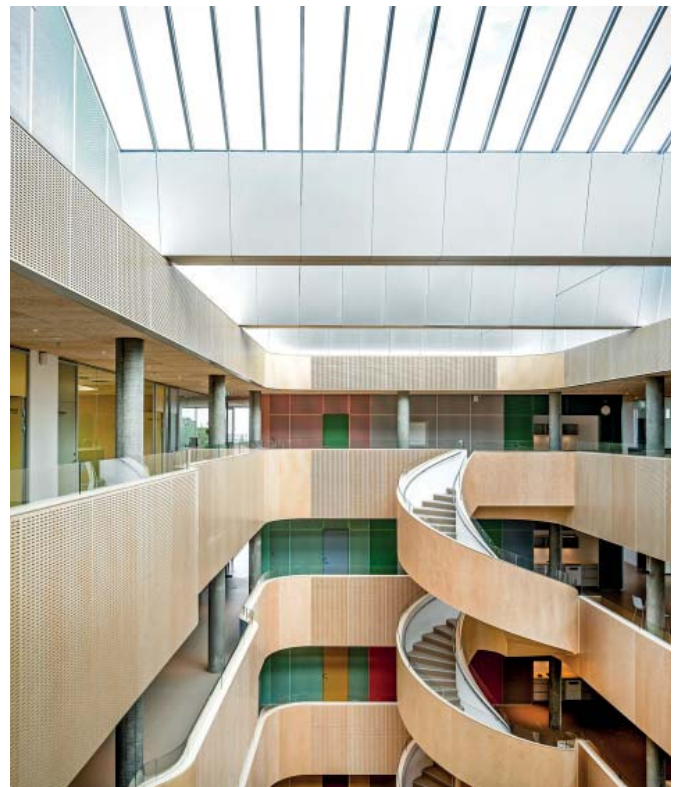


Figure 16. Atrium by the main entrance
Source: <http://www.karlssonark.com/nyt-psykiatrisygehus-i-slagelse/>

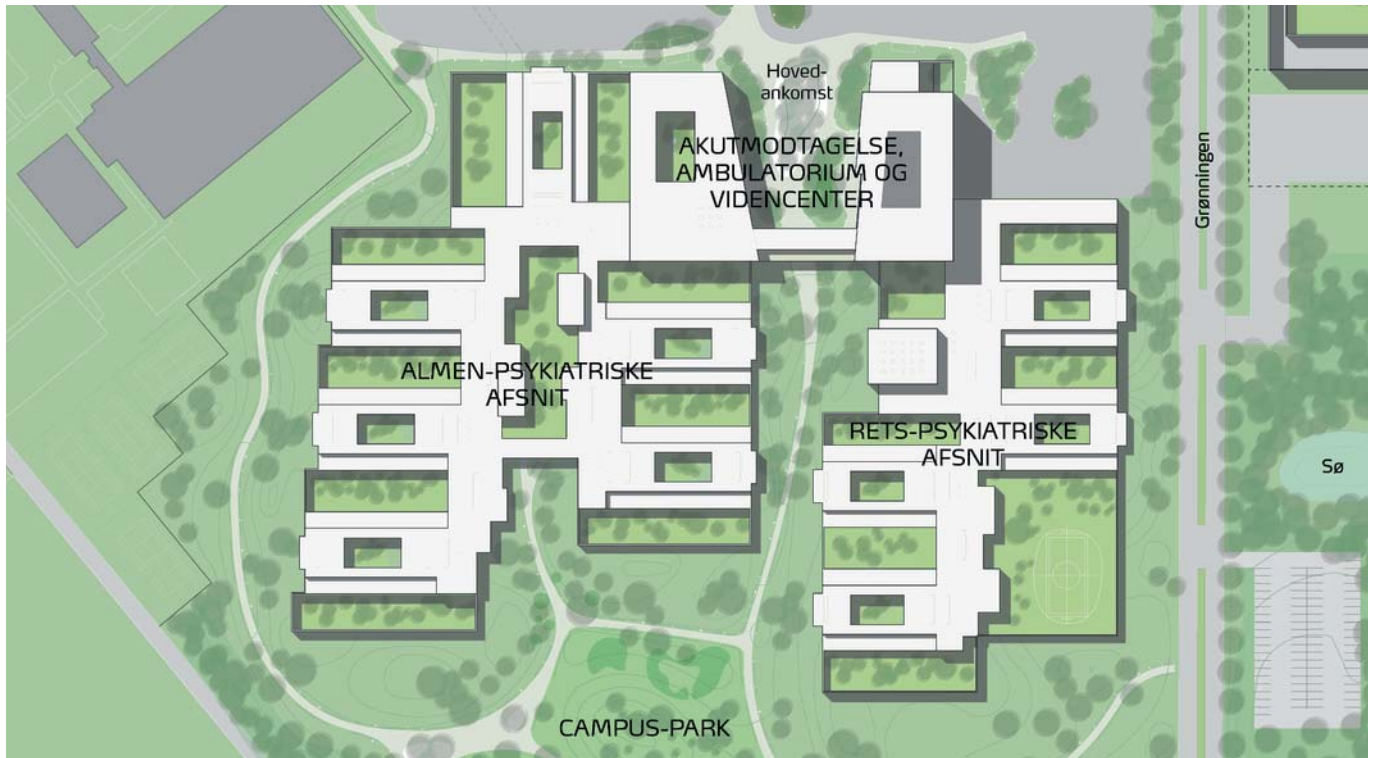


Figure 17. Structural plan for the psychiatric hospital in Slagelse (Karlsson Arkitekter)

Building layout

The outpatient care and administration are gathered in a high building in the north, and south of them the wards stretch out into the park in a one floor building.

There are many courtyards of different forms, either open or closed, for watching, for being in and to let light into the building.

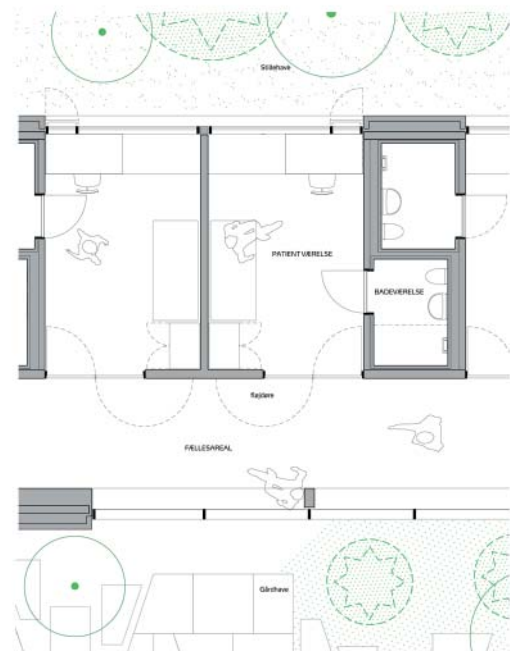


Figure 18. Floor plan for patient rooms (Karlsson Arkitekter)

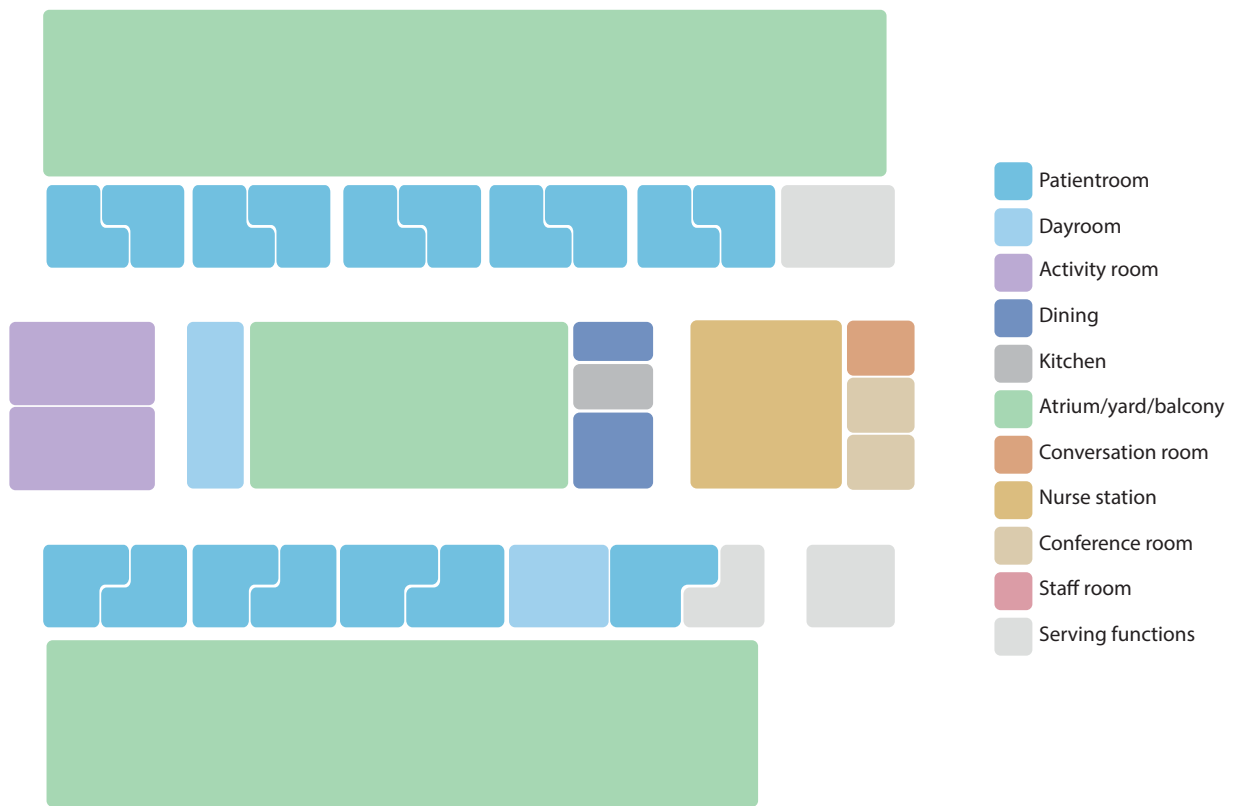


Figure 19. Illustration of the ward layout

Ward layout

Each ward consists of 17 patient rooms arranged around a small courtyard. The patient rooms all face a courtyard on one side, and a glazed corridor along the small courtyard on the other. This give all patient rooms very good daylight conditions, as well as an interesting view through the door to the patient room.

The staff areas are gathered by the entrance to the ward, by the dining area for patients. Because of the yard the staff have a very good overview over the whole department.



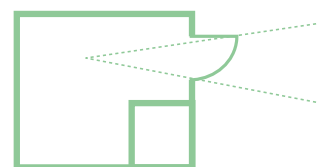
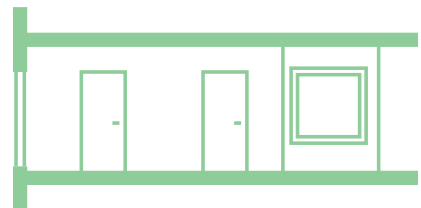
Figure 20. Yard between the ward units
(Architectural Review)

My inspiration from this

Slagelse psychiatric hospital had great conditions with the big site and surrounding nature and the architects managed to take care of this and make a small scale building with good contact to nature.

When looking from the patient room out through the door the patient look through a glazed corridor into a common yard. To give the patient a view through the patient door allow for him/her to stay in a safe and private place but still see things happening outside.

This project show an example of how to give the staff good overview by placing a glazed yard in the middle of the department.



Sofieskolen



Figure 21. Render of Sofieskolen (Archdaily)

Facts

Location: Ballerup, Denmark

Year: planned opening 2018

Architect: Creo Arkitekter & JAJA architects

Sofieskolen is a home for children with autism. It's built to be a building that feels like a home and not an institution, with small groups of dwellings gathered around a living room.

It is low scale with only two floors. The upper floor is withdrawn towards the neighboring forest to make the scale even lower towards nature.



Figure 23. Render of corridor
Source: archdaily.com <http://www.archdaily.com/784811/creo-and-jaja-to-design-home-for-children-with-autism-near-copenhagen>



Figure 22. Section of the common areas (Archdaily)

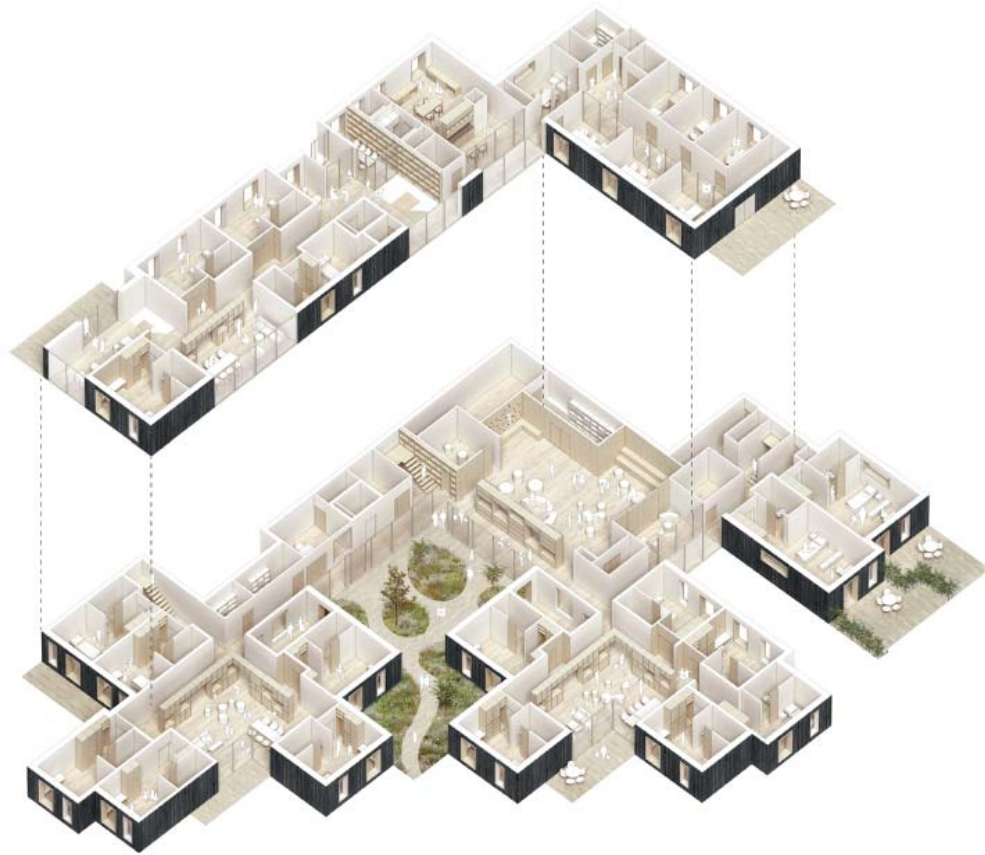


Figure 24. Exploded sketch of the building (Archdaily)

My inspiration from this

What I like with this building is the low scale and the broken up volume that brings the nature into the building.

Place built furniture made of wood that works both for storage and seating make corridors and common areas feel thoughtful and welcoming.

The smaller groups of dwellings around an open living room is an element that has been used in other psychiatry buildings as well and might be a way to make the building feel less like an institution.

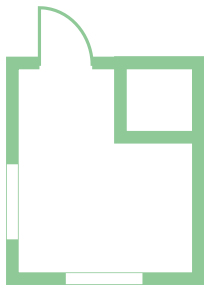


Summary: Case studies

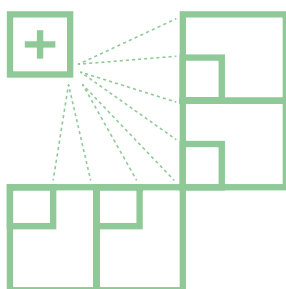
Following illustrations show qualities picked up from the case studies which are incorporated in the design proposal.



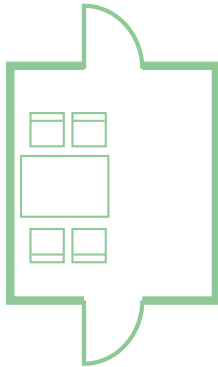
A small atrium in the ward brings daylight and greenery into the building



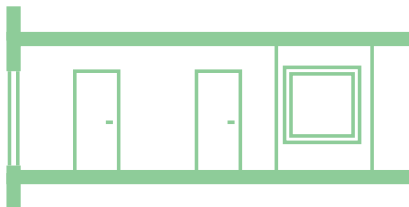
Get daylight from two directions in the patient room



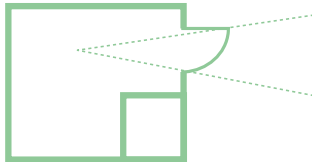
Create a good overview for the staff



Make conversation rooms with double exits to eliminate the risk for staff of being cut off from the exit



Give the corridors access to daylight; place them either towards or along windows



Give the patient a view through the open door. The door should not face straight into a wall.



Weave nature into the building

Östra Sjukhuset

- The hospital area and the situation today

Östra sjukhuset

Östra Sjukhuset is part of Sahlgrenska University Hospital [SUH] in Gothenburg. SUH also consists of the Sahlgrenska hospital area, Mölndals Sjukhus and Högsbo Sjukhus. Östra Sjukhuset is situated east of the city centre in Gothenburg and can be reached with tram, bus, car and by foot/bike.

Typology

Östra Sjukhuset has a very orthogonal layout of the building. With a few exceptions, all lines run straight along south-north or east-west. This layout very much follows the urban planning ideas of the time when the hospital was built.

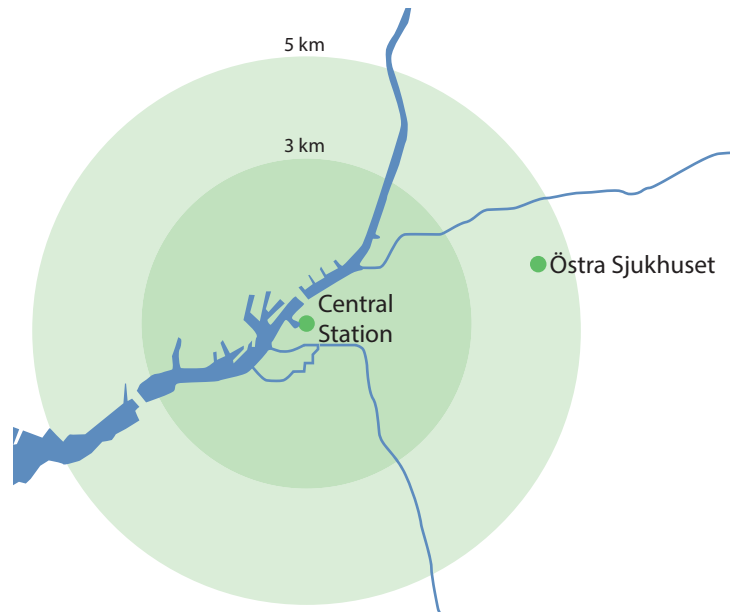


Figure 25. Östra Sjukhuset in Gothenburg
Illustration by the author



Figure 26. Left: Main entrance to the hospital with the central clinic towering above



Figure 27. Top right: The central clinic



Figure 28. Bottom right: The children's clinic.

Photos taken by the author



The buildings

The first part of Östra sjukhuset, the womens clinic (KK), was finished in 1968, then infection (IK), the children's clinic (BK) and the central clinic (CK) followed in the next 10 years. The two buildings in the north, marked SH and MC are service buildings for the hospital.

In 1988 the first addition to the hospital since CK was done, a building for Children and youth psychiatry (BUP). In 2004 the children clinic got an addition and in 2007 the new building for adult psychiatric care (PK) was finished. The next big building project in the area is the new building for Drottning Silvia's Children's Hospital (NBS) that will welcome it's first patients in 2020 (Västra Götalandsregionen 2011).

All the buildings built between 1968 and 1978 have a cohesive look; the higher buildings have facades of concrete elements with exposed aggregate and window ribbons, and the lower are clad with green glass, also with window ribbons.

The building for BUP is similar to the rest, with window ribbons, but clad with a board material, and overall with a less permanent look to it, with less attention taken to detailing like day water management and how the wall ends in the top.

PK sticks out with it's white plaster facade and varied window placements.



Figure 29. The high, modernistic buildings (Göteborgsposten 2016)



Figure 30. The psychiatric clinic at Östra Sjukhuset
Photo taken by the author

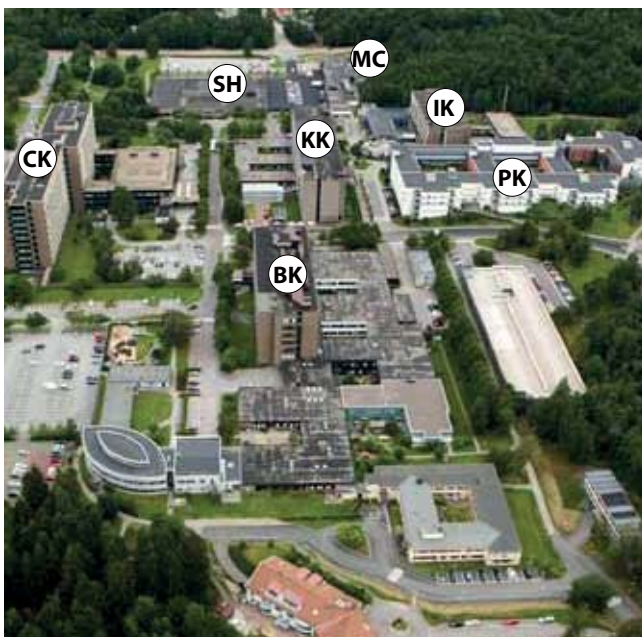
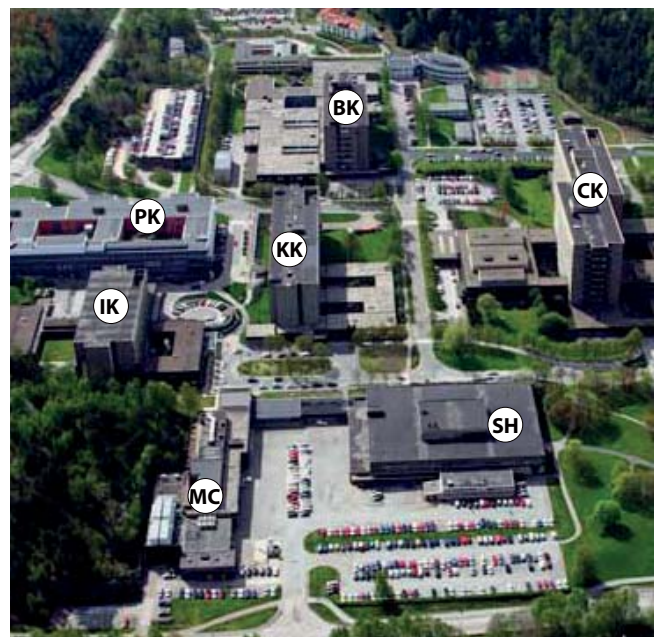


Figure 31. Views over Östra Sjukhuset (Västra Götalandsregionen 2011)



Traffic and flows

Cars are allowed into the hospital area to reach the entrances to the departments. There are parking areas at the edges of the hospital area, mainly in north-west and south-east.

There is a big stop for trams and buses at the north-west corner of the hospital area, and a bus stop east of the hospital.

Goods come to the hospital via the building SH in the north, and are distributed to the hospital through a culvert system.

The entrances to the buildings are marked with a white concrete column with a sign saying which building it is. Most of them have a canopy to protect from the weather.



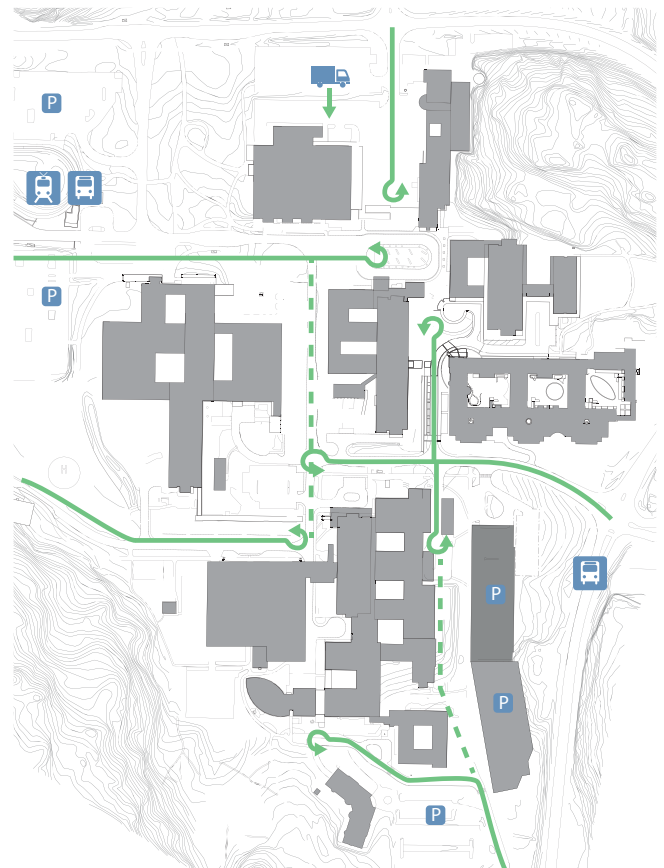
Figure 32. Main entrance to Östra Sjukhuset. Photo taken by the author



Figure 33. Entrance to the children's hospital. Photo taken by the author



Figure 34. Entrance to the psychiatric clinic. Photo taken by the author







- Cars
- - - Cars with permission
-  Tram stop
-  Bus stop
-  Goods access
-  Parking

Figure 35. Traffic flows in Östra Sjukhuset. Illustration by the author

Visions for the future

The buildings in Östra Sjukhuset are starting to get outdated and they need to be refurbished and complemented by new buildings.

The first step in the development is the new children's hospital that are being built now, next is an addition to the women's clinic and the new building for BUP. Buildings that are further into the future are an addition to the central clinic and the existing children's clinic, and a new service building north of the hospital.

If we move even further into the future the hospital have expanded with even more buildings, mostly towards west and north.



Figure 37. Östra sjukhuset ca 2025 (Västra Götalandsregionen)



Figure 38. Östra Sjukhuset 2030, with an addition the central clinic (1), an addition to the children's clinic (2) and a new service building (3) in the north. (Västra Götalandsregionen)



Figure 36. Vision for future expansion of Östra Sjukhuset (Västra Götalandsregionen)



Figure 39. A vision for how the hospital area might develop in the future with many new buildings and a high tech area in the middle of the hospital (Västra Götalandsregionen)

BUP in Östra sjukhuset

Children and youth psychiatry [BUP] in Östra Sjukhuset includes an emergency department, a clinic for eating disorders with both inpatient and outpatient care, a psychiatry ward and outpatient care. In another site there is more inpatient care, and collaboration with them is very hard.

BUP has its own hospital school for the children that get admitted to the wards or children that for different reasons can not go to a regular school for a while.

The patient

The patient group for BUP range from 0-18 years (0-25 in the department for eating disorders). Most of the patients in the inpatient care are of the age of 12 and up, mainly in the age of 16-17, while the younger patients are found only in the outpatient care.

The building

The building was built in 1988 and is referred to as a temporary structure made of wood in Byggnadsplan 2011, a document with plans for the hospital, this can be seen as the building doesn't have the attention to detailing that the other buildings in the area have.

It is placed in connection to the children's hospital in the south end of the hospital area.

The departments that are in the building have outgrown it, and in the future they want to bring in the departments that are now located elsewhere, thus there is a big need for larger localities.



BUP in Östra Sjukhuset



Figure 40. The low building to the left is the building for BUP in Östra Sjukhuset today.
Photo taken by the author



Figure 41. Main entrance to BUP
Photo taken by the author

Design proposal

The program

BUP today has a great need for expansion as it is today, and with the population increasing the need will only grow bigger.

The new building will contain three different outpatient departments, a day ward department and five ward units.

The program I received from the group of representatives from BUP included many rooms with office and counseling combined in the same room. With new visions for how the administrative workplaces in a hospital should look like and the idea to meet the patient on equal terms in a neutral counseling room, I have decided to work more with open administration areas and dedicated counseling rooms. This allows for the staff to choose between different kinds of rooms depending on the situation.

I have chosen to take away activity spaces from each department and gather them in an "activity square" in the center of the building so they can be used by all departments.

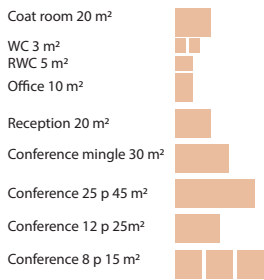
Building gross area*:	8000 m ²
Effective care area**:	4000 m ²
Patient rooms:	38
Patient rooms/ward:	8 (1 ward with 6)
Utility area***/ward:	535 m ²
Utility area ward/patient:	67 m ²

*Building gross area is the buildings total area, exterior walls included.

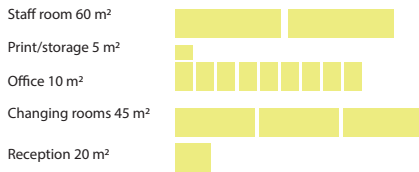
**Effective care area is the area for all rooms, without communication and technical rooms.

*** Utility area is the total area without exterior walls

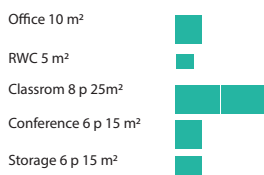
Entrance and conference



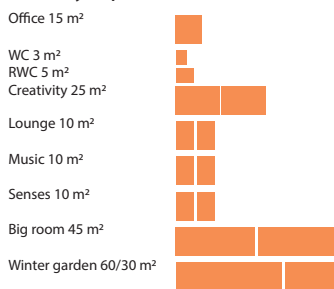
Administration/staff



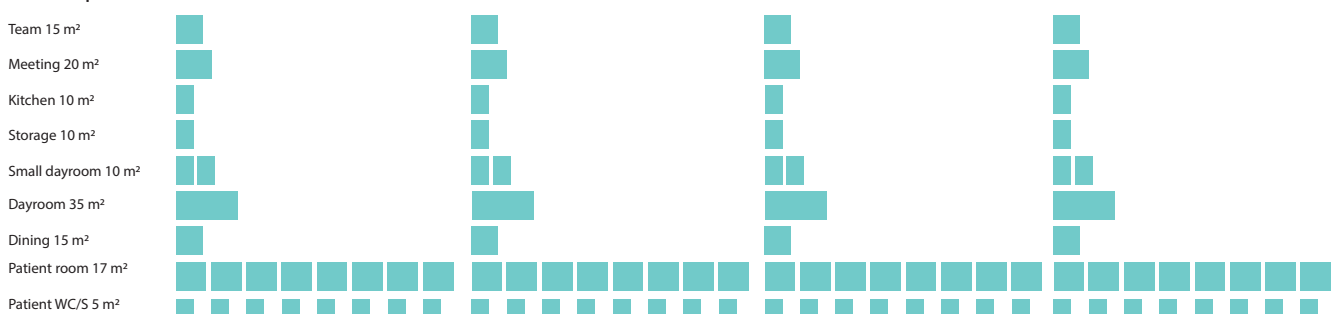
School



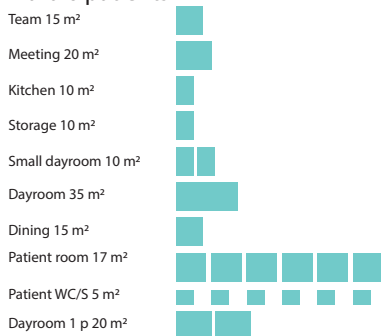
Activity square



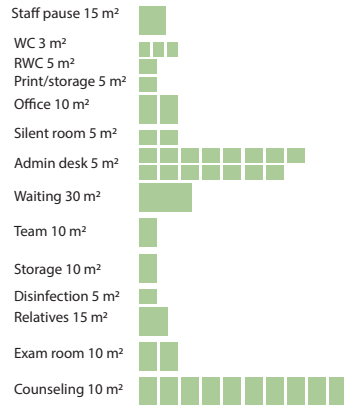
Ward 8 patients



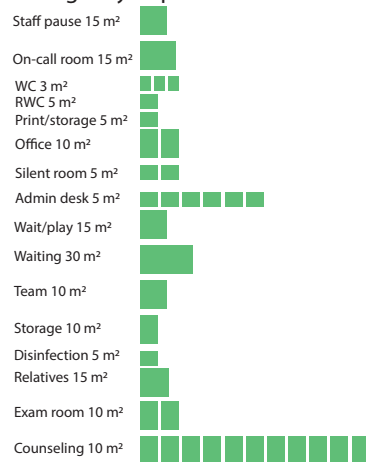
Ward 6 patients



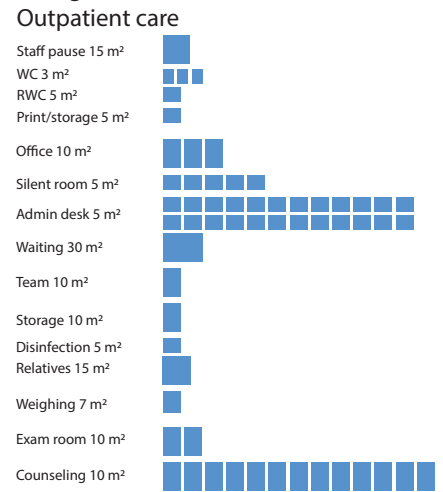
Specialist outpatient care



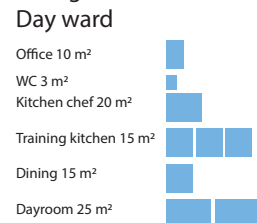
Emergency department



Eating disorders



Eating disorders

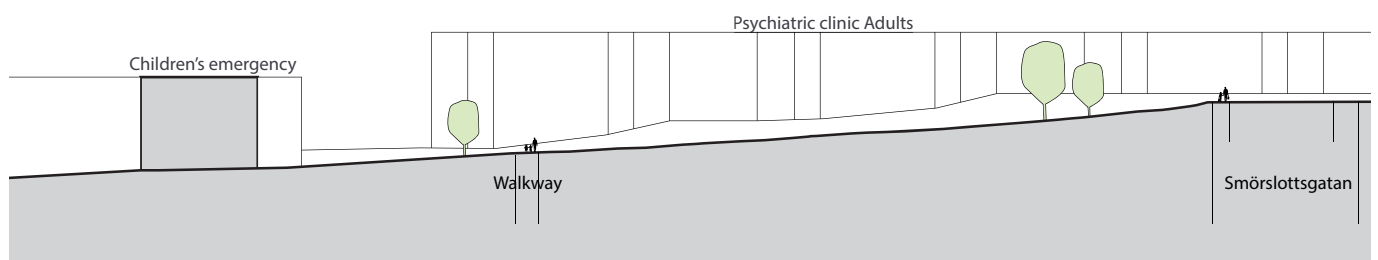
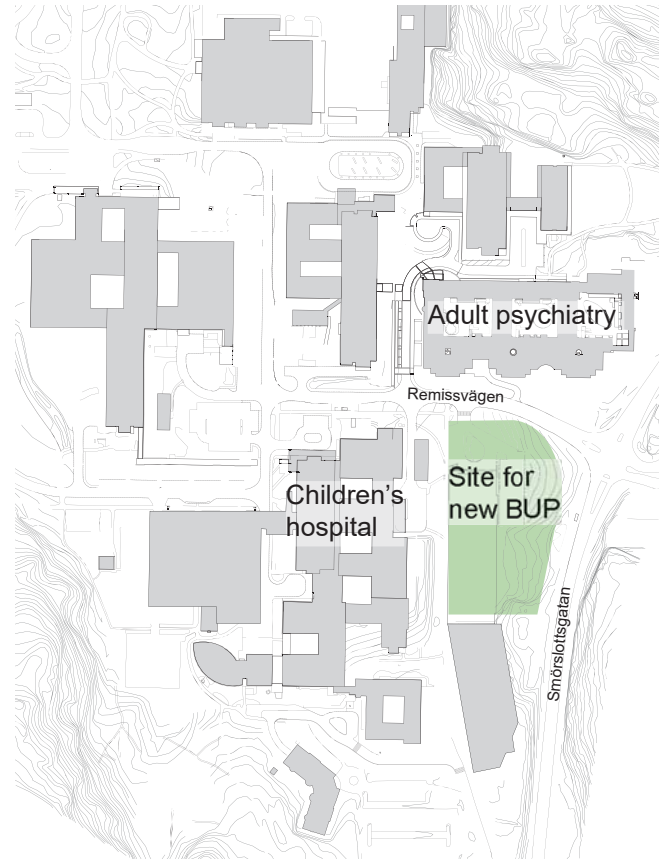


The site

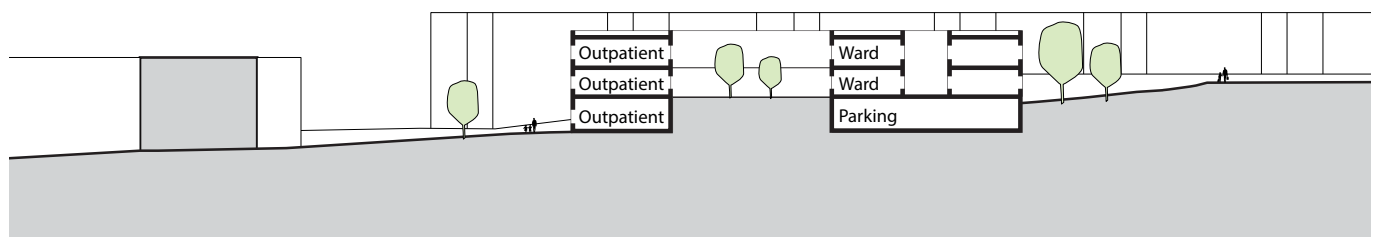
The site is situated in the eastern side of the hospital area, south of the adult psychiatric clinic. On the site today is a parking deck that is old and will be demolished and the parking spaces replaced on another site.

The topography of the site is sloped towards west, with the highest point towards Smörslottsgatan, a quite calm street with a bus stop right by the site.

The slope is so steep that the entrance in the west will be one floor below the groundfloor in the east.

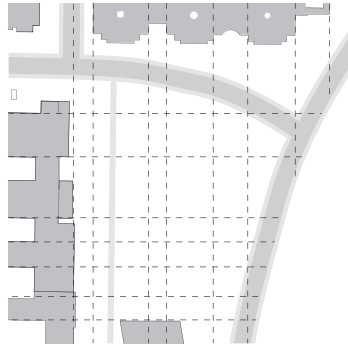


Schematic site section showing the slope

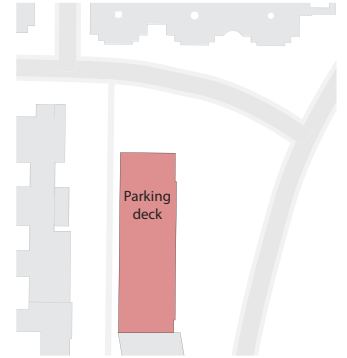


Schematic site section with a new building

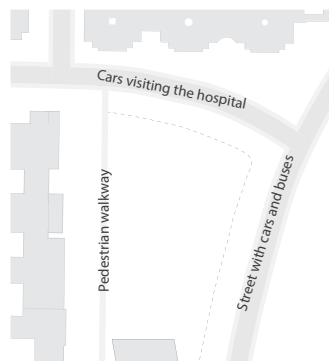
Surrounding buildings, and almost the entire hospital area, follow a strict orthogonal system



Building that will be demolished. The parking will in part be replaced in a parking deck under the new BUP building, the rest will be located elsewhere.



Roads and pedestrian paths around the site. For privacy the building will keep a distance from the streets.



Greenery and trees around the site. The hospital area has a lot of greenery and the site is not an exception.



Heights on the site. The slope rise about 4,5 meters between the east and the west side of the new building.



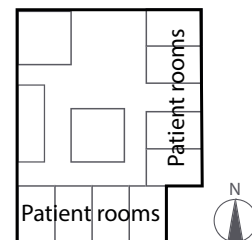
Building form - step by step

The new BUP follows the strict orthogonal plan of Östra Sjukhuset. The shape have long, straight lines to the west where it meets the hospital and a more broken up form to the green area in the east towards smörslottgatan, and the housing area.

The steps to reach the final form are schematically described below.

The patient ward

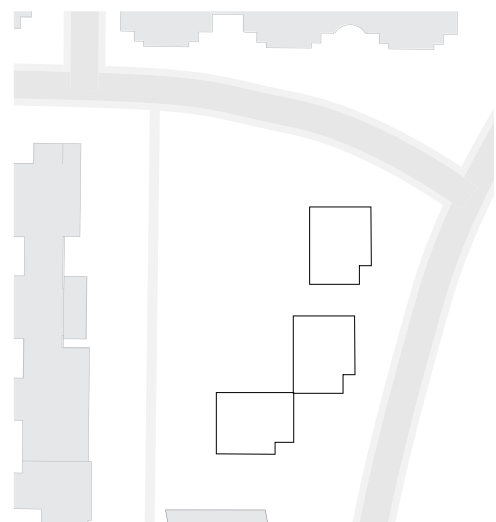
The first step in the design of the building was to design a patient ward. All patient rooms face either south or east for good daylight and to face the green area in the east part of the plot.



Arrange them on the site

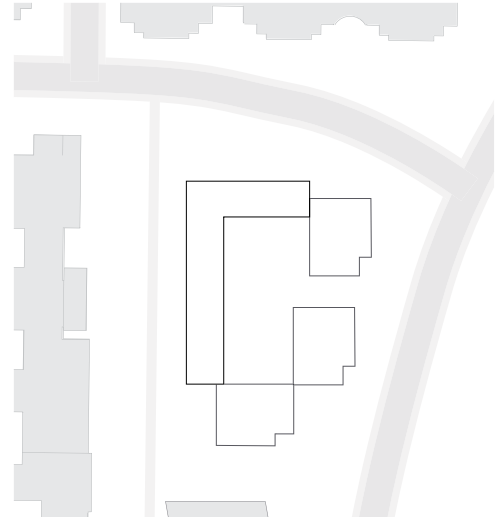
When the ward was decided they had to be arranged on the plot. There are five units, three on the first floor and two on the second.

The wards follow the terrain and are placed to give sun to all patient rooms.



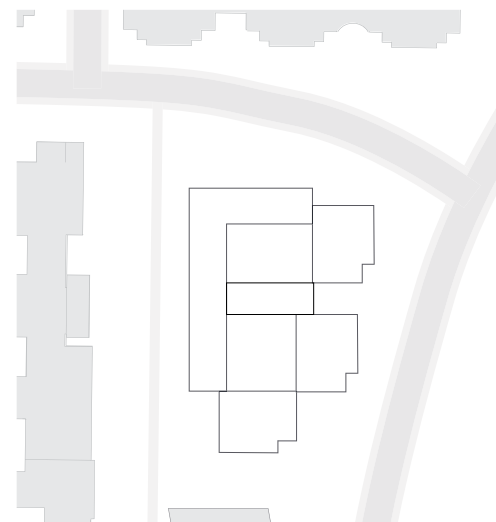
Add the outpatient care

The outpatient care are placed towards the hospital and have a more strict form to meet the orthogonality of the hospital area.



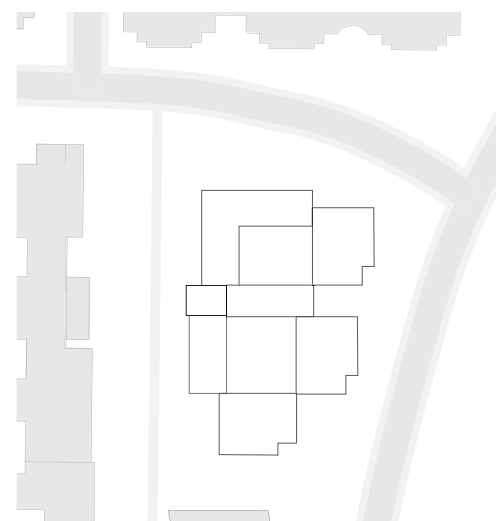
Connect the two parts and split the yard

To create two yards and to connect the wards with the outpatient care a building is placed in the middle. This part will be the activity square which can be used both by patients visiting the outpatient departments, and the patients submitted to the inpatient care.



Create an entrance point

Since patients will come to the building both from the north and the south the entrance will be placed on the middle of the western facade. The outpatient building is distorted in the middle to create an entry point, placed so that it meets the emergency entrance to the children's hospital.



Site plan

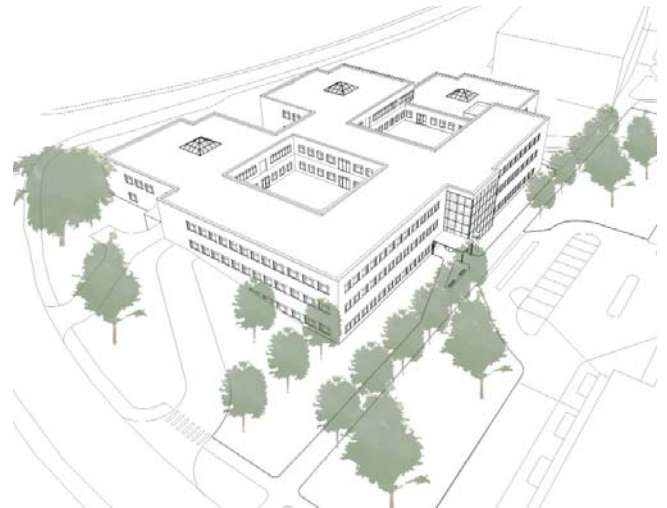
The building rests in a green setting, surrounded by trees and different kinds of green areas.

The protruding volume with the entrance is highly visible both from north and south and the school in the south gets a small schoolyard that is sunlit all afternoon.

The two yards enclosed by the building have different functions. The south yard is an active space with cropboxes, a sunlit wooden decking and a place for outdoor group therapy. The north is more passive, for being outdoors, sitting in the grass or strolling on the paths.



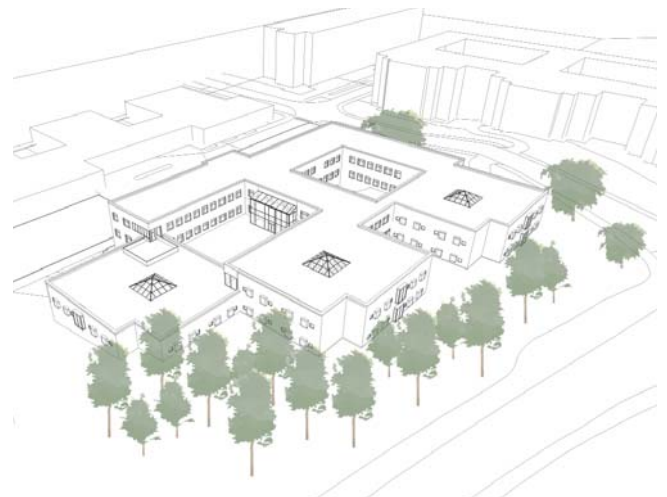
View towards the entrance from the north



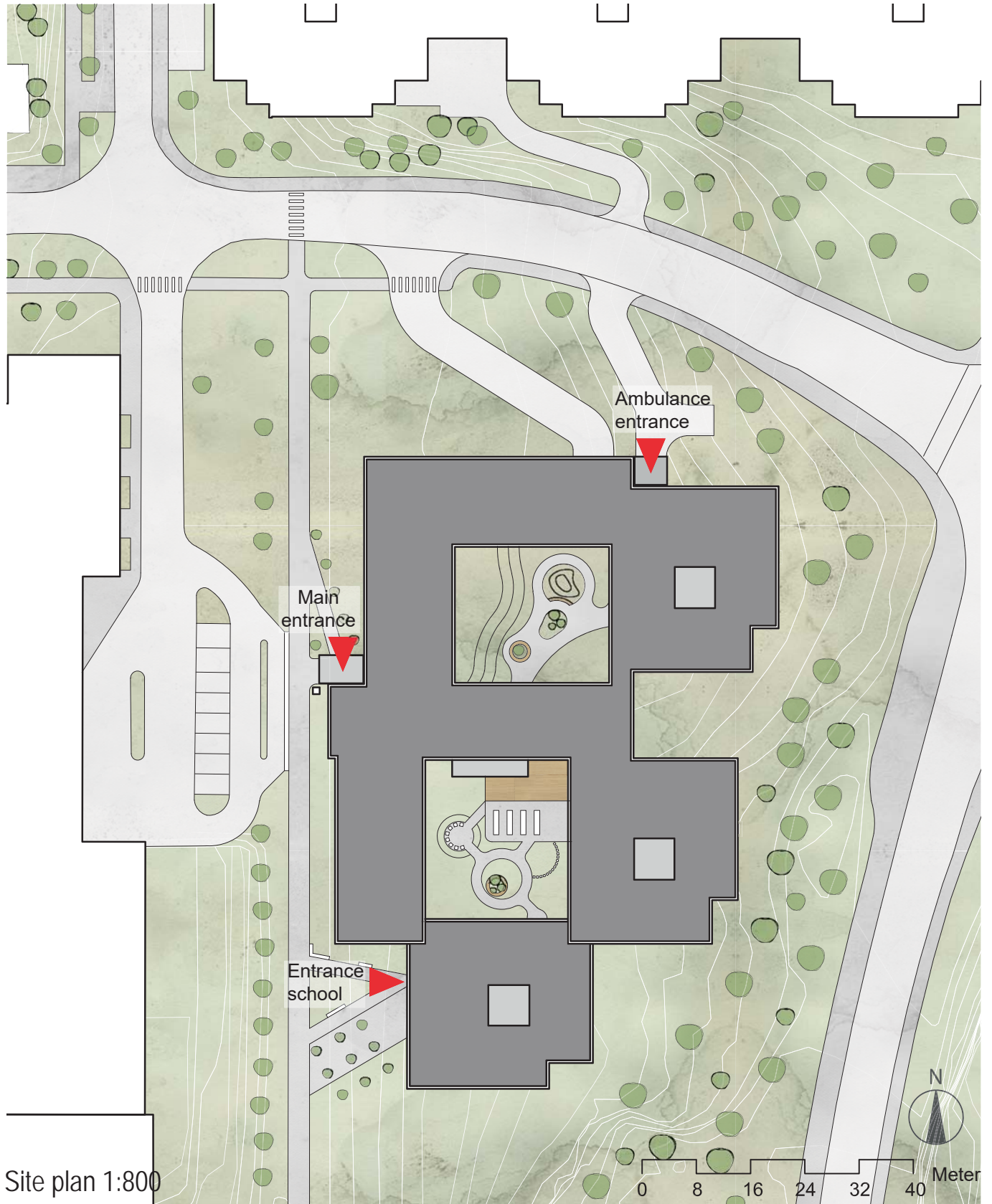
Bird view over the building from the north-west



View towards the entrance from the south



Bird view over the building from the south-east



Departments in BUP

Emergency department

BUP's emergency department is open for patients under the age of 18. It treats acute psychiatric illness or problems and since the patients are minors they often come accompanied by parents or relatives. Some patients arrive with ambulance, those are often acting out and needs to be in a calm room without other patients.

Functions needed in the emergency department are different kinds of conversation rooms, administrative areas and exam rooms. Connected to the emergency department are twelve in-patient rooms.

Children that come to this department can be of all ages.

Specialist department

The specialist department is an outpatient care department that treats many psychiatric disorders. Some are depression, bipolar disorder, Tourette syndrome, obsessive-compulsive disorder and different kinds of phobias.

Children of all ages come to this department.

Inpatient care

The inpatient care department is for children suffering from different forms of mental illness that is so severe that they no longer function at home. In the inpatient care the patients get treatment and counseling, as well as a form of daily life in the hospital school and the play therapy. There are two departments for inpatient care today, one connected to the emergency department and one called short-stay inpatient care where the patients most often stay at home over weekends.

In the inpatient care the patients are mostly twelve or older, it is not common practice to admit younger children to inpatient care.

Eating disorders outpatient care

The department for eating disorders treat patients of the ages of 16 through 25 and involves outpatient care, dayward and inpatient care. The eating disorders department in Östra Sjukhuset have patients from the entire region.

The treatment is adapted to each patients needs, for patients under the age of 18 family is always involved, and if the patients are older it is strongly recommended, but not mandatory to involve family or close relatives.

In the first evaluation of the patient a medical exam is carried out. Some methods used in the treatment are family therapy, group therapy, cognitive behavioral therapy and physical therapy.

Eating disorders inpatient care

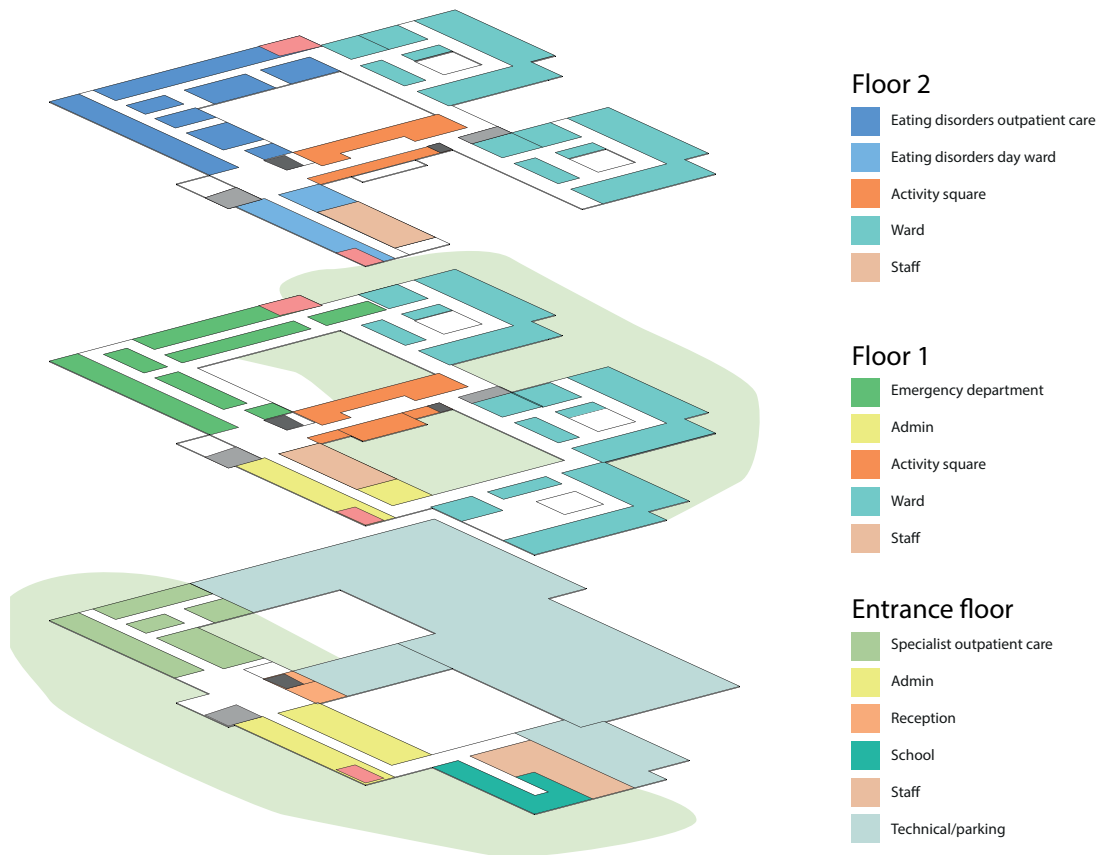
The inpatient treatment program usually lasts for three months, where the patients go through different care zones called red, yellow and green. In the red zone the patient have a big need for support, in the yellow the need for support is still high, but the patient is given more own responsibility and in the green zone the focus is on own responsibility, but with some support.

The treatment in the inpatient wards involves group therapy, family therapy, meal therapy, meetings with a physiotherapist and different kinds of activities such as a writing circle and handicrafts.

Eating disorders day ward

Treatment in the day ward looks like the treatment in the inpatient care, but the patients stay at home. They come to the hospital during daytime to participate in meal therapy, counseling, family therapy and group meetings.

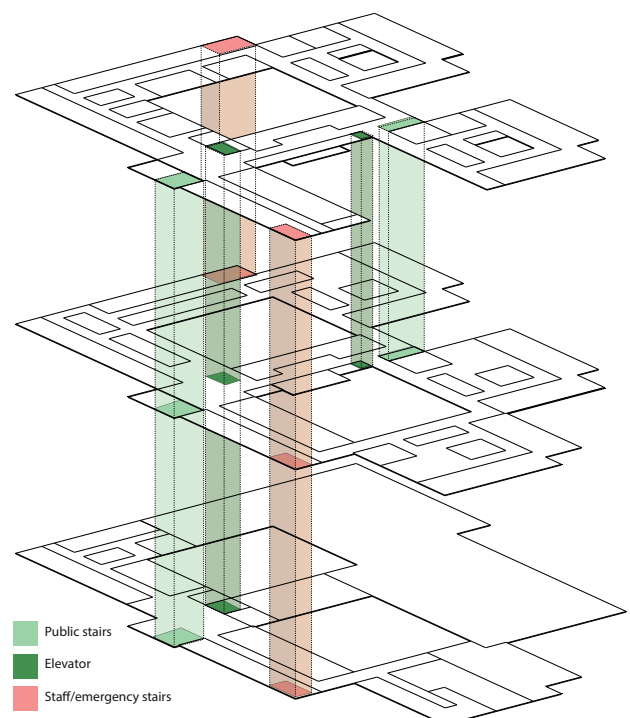
Arrangement of departments



The groundfloor contain a reception, the patient school, conference rooms and the specialist department. Since the site is sloped the back side of the ground floor is below ground level and houses parking and technical spaces as well as changing rooms for staff.

On the first floor we find the emergency department, 22 patient rooms divided on three wards, an activity square, the main administration for BUP and the two yards. The second floor has gathered all functions for eating disorders, the outpatient care, the dayward and 16 patient rooms divided on two wards. In the south is a roof terrace connected to the staff room.

There are three elevators in the building, two by the main entrance and one in the activity square. The main stair for patient communication is by the main entrance, and there is also one for patients in the wards in the activity square. Staff/emergency stairs are placed in the south-west and north-east corners of the building.



Groundfloor (floor 0)

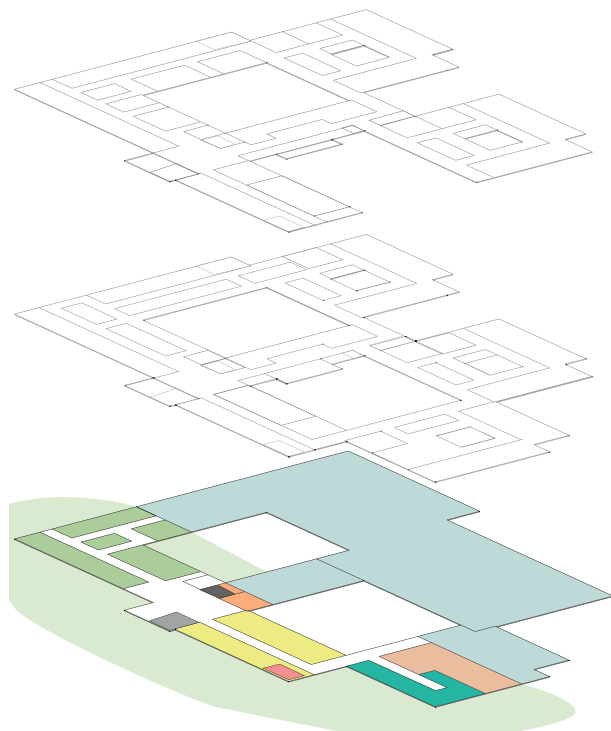
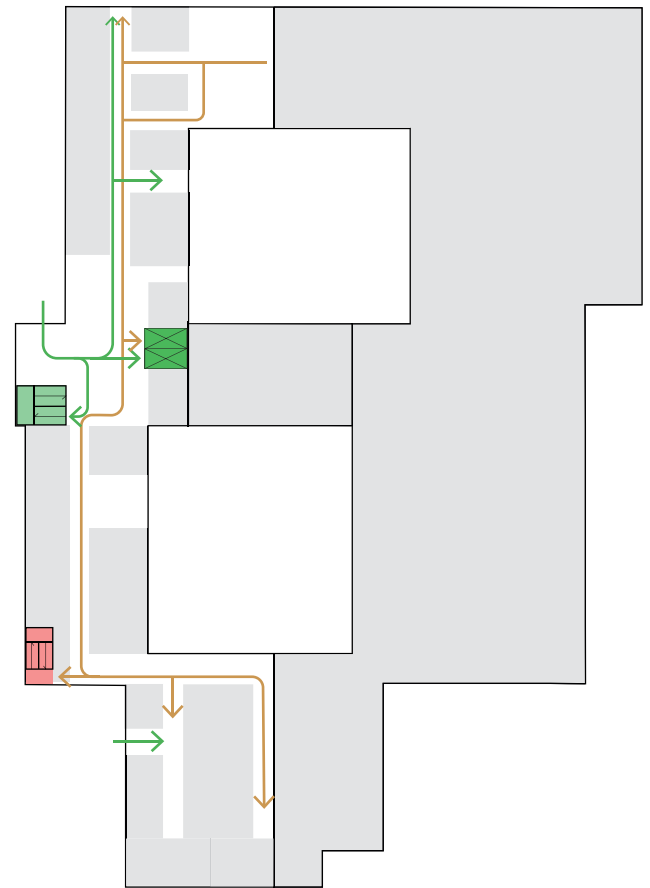
The entrance to the building is placed in the middle of the west facade, protected in a corner that is created through the offset of the yards.

The entrance hall will contain a reception and a small waiting area.

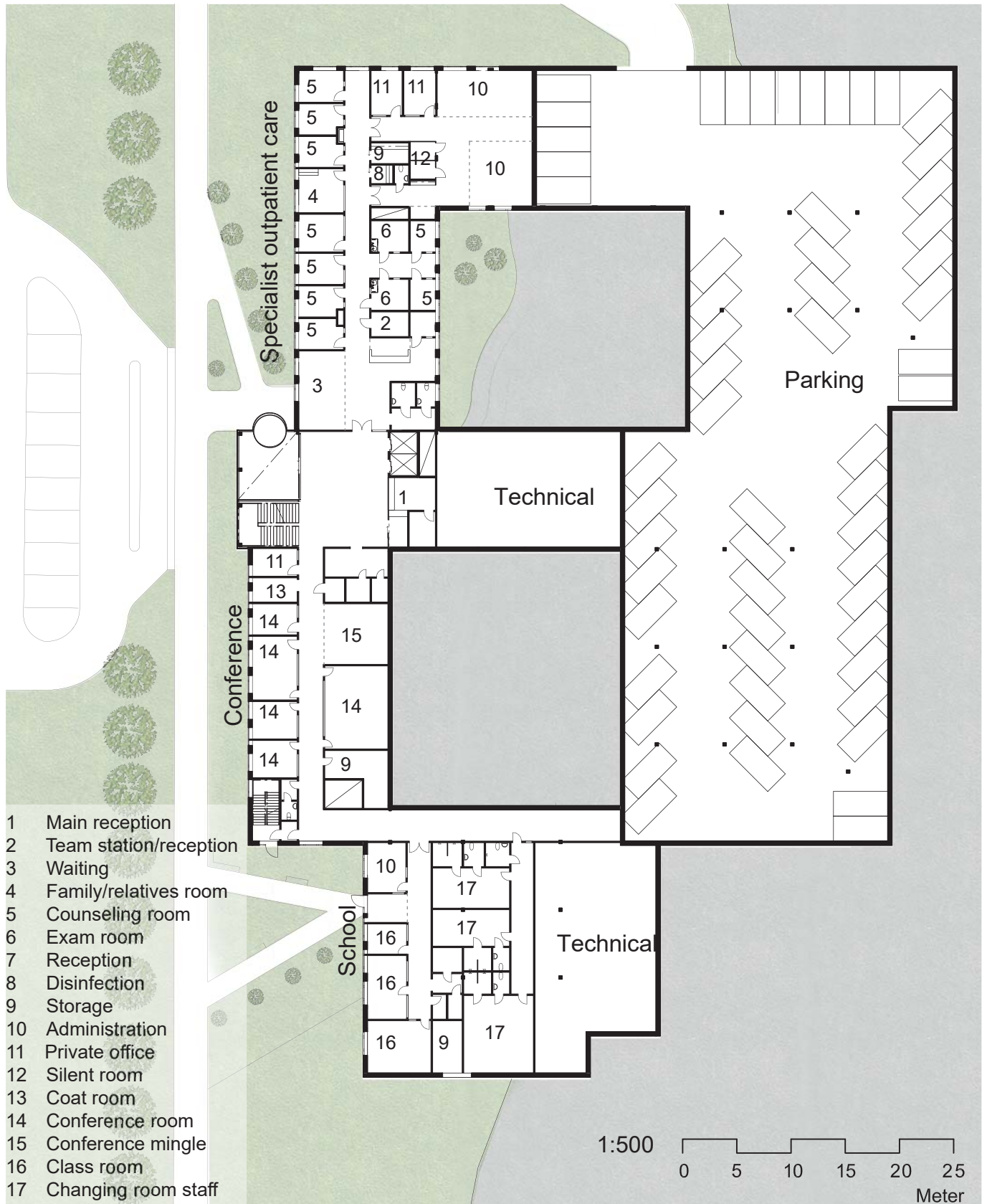
North of the entrance is the specialist department and to the south is the conference area.

The school has its own entrance and is placed in the southern end of the building.

Along the east side of the building is a parking garage. This part is under ground because of the sloped site.



- Patients
- Staff
- Public stairs
- Elevator
- Staff/emergency stairs

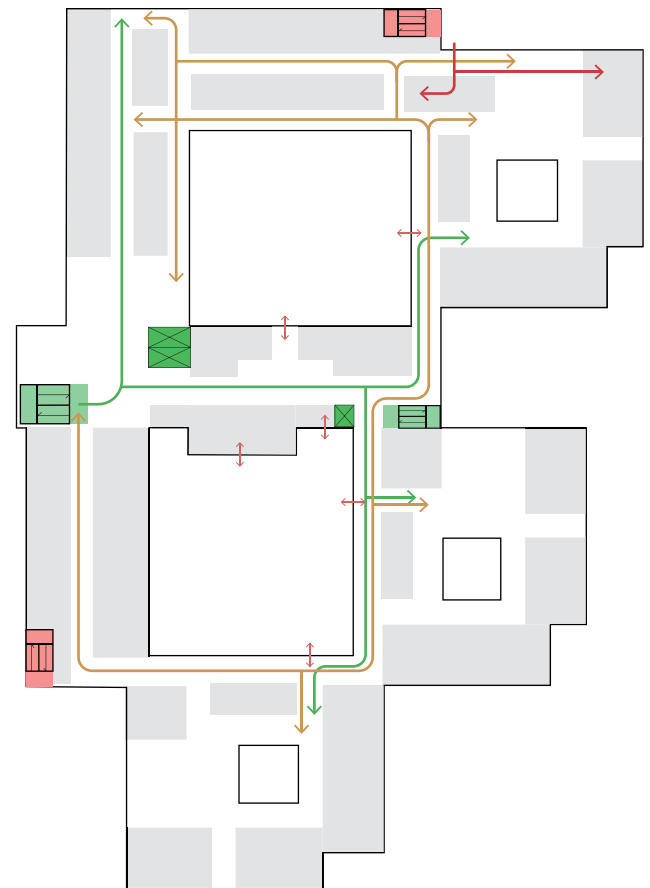


Floor 1

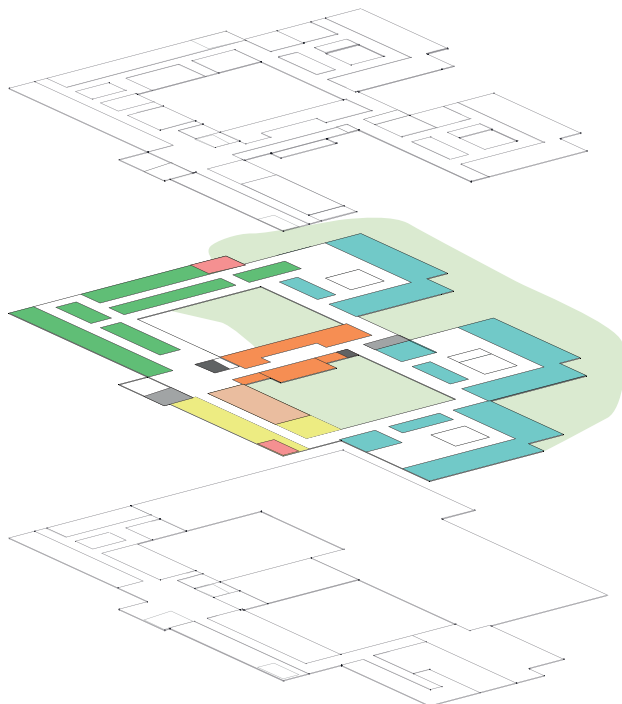
The patients reach the floor via the main staircase in the entrance hall. From the entrance lobby the emergency department, the activity square and the administration are reached directly. The wards are reached through the activity square, that by this is given a very visible place in the building. There is an office in the activity square to that staff can have control over who moves through the area.

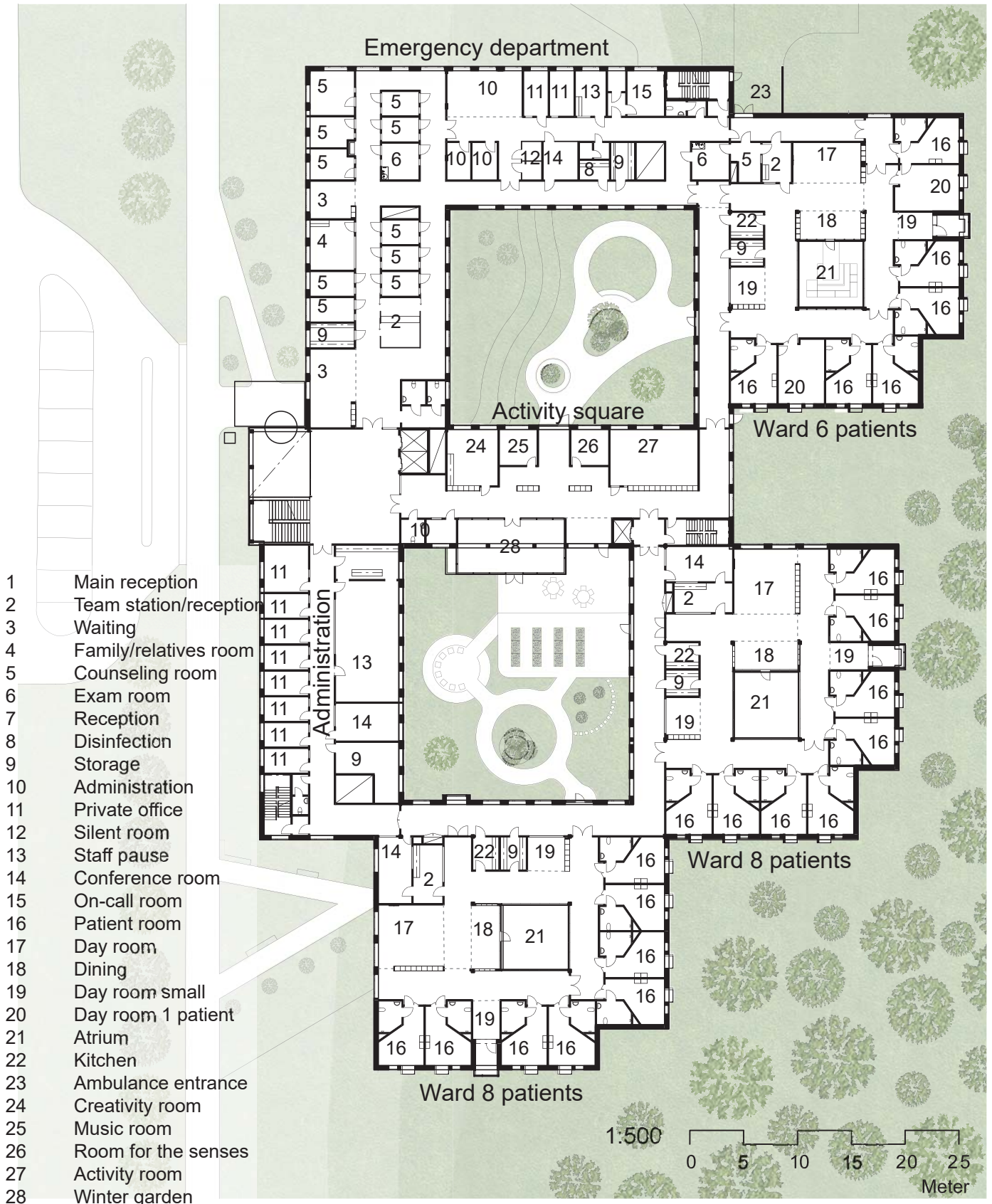
The flow of patients are mainly in the western and the central part of the building, while staff move around mainly in the east part of the building, separated from the public patient flow.

The ward by the ambulance contains only six patient rooms, and has two patient rooms with private dayrooms for patients that need to be alone. This ward can easily be locked off from the rest of the building but keep access to the north yard to be used by patients with an escape risk.



- Flow from ambulance
- Patients
- Staff
- Public stairs
- Elevator
- Staff/emergency stairs
- ↔ Access to the yard

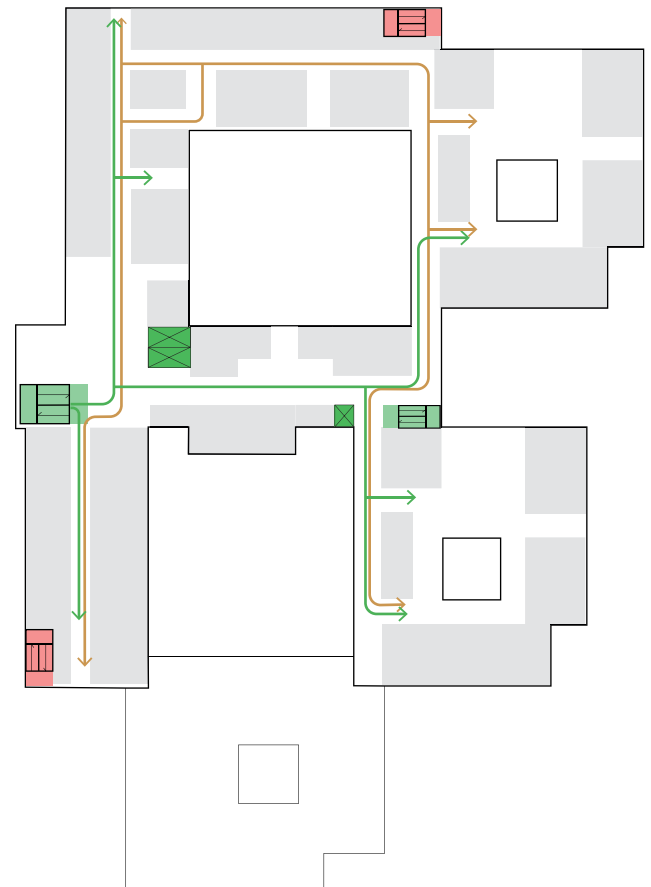




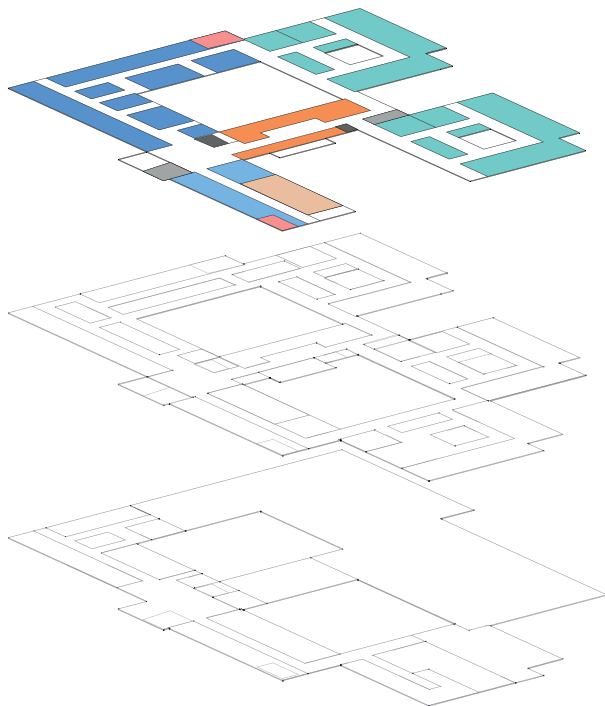
Floor 2

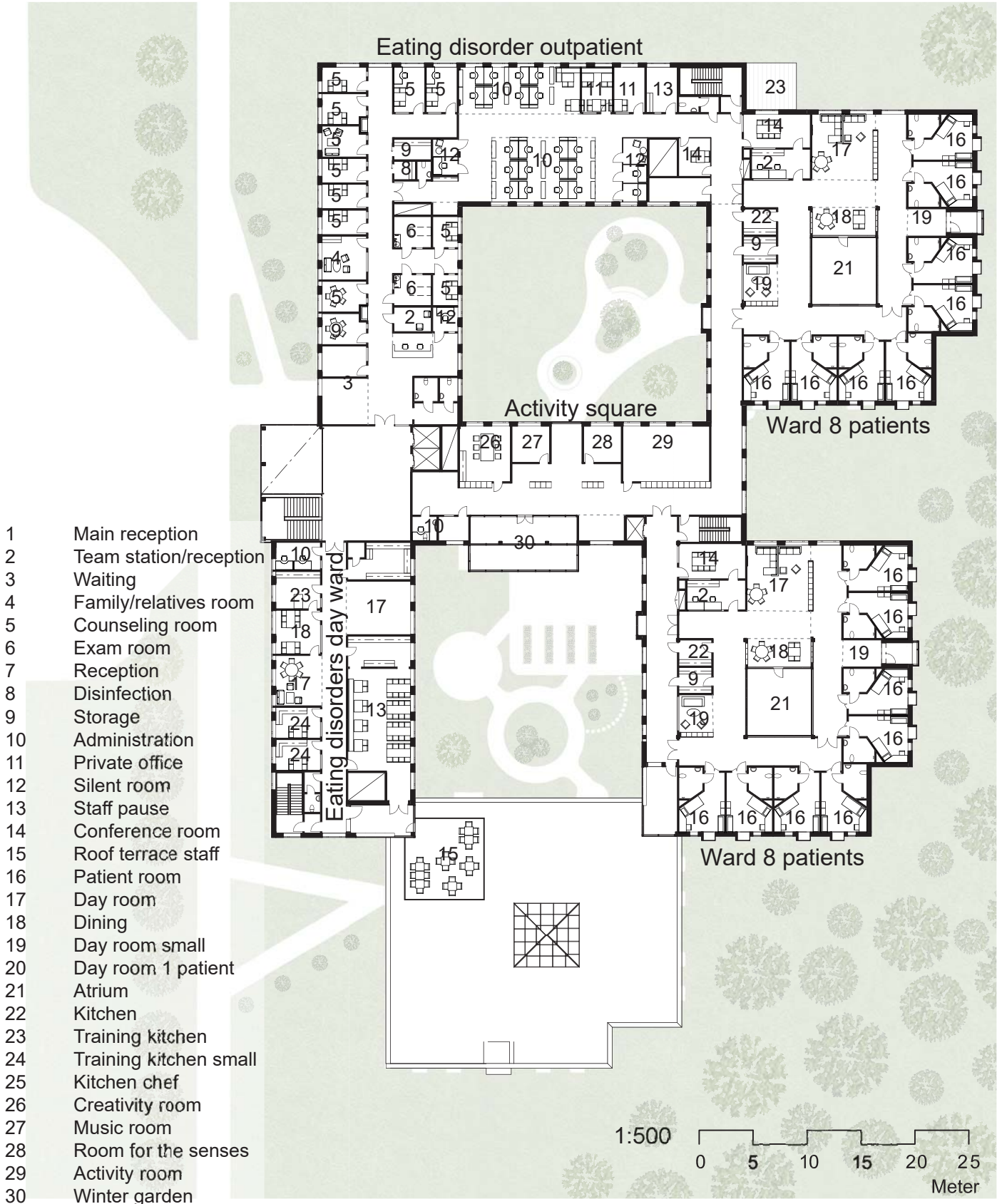
The second floor houses the departments for eating disorders, including an outpatient department, a day ward and 16 patient rooms, that will mainly be used for patients with eating disorders, but also for some other patients. The organization is very much like the first floor, but with some differences. The outpatient care for eating disorders does not have the need for double access to conversation rooms, so the double corridor is removed in favor of some extra area for rooms.

In the south, above the third ward on the first floor, there is a roof terrace connected to the staff room. This space can be used for future expansion if the departments outgrow the building.



- Patients
- Staff
- Public stairs
- Elevator
- Staff/emergency stairs





Emergency department

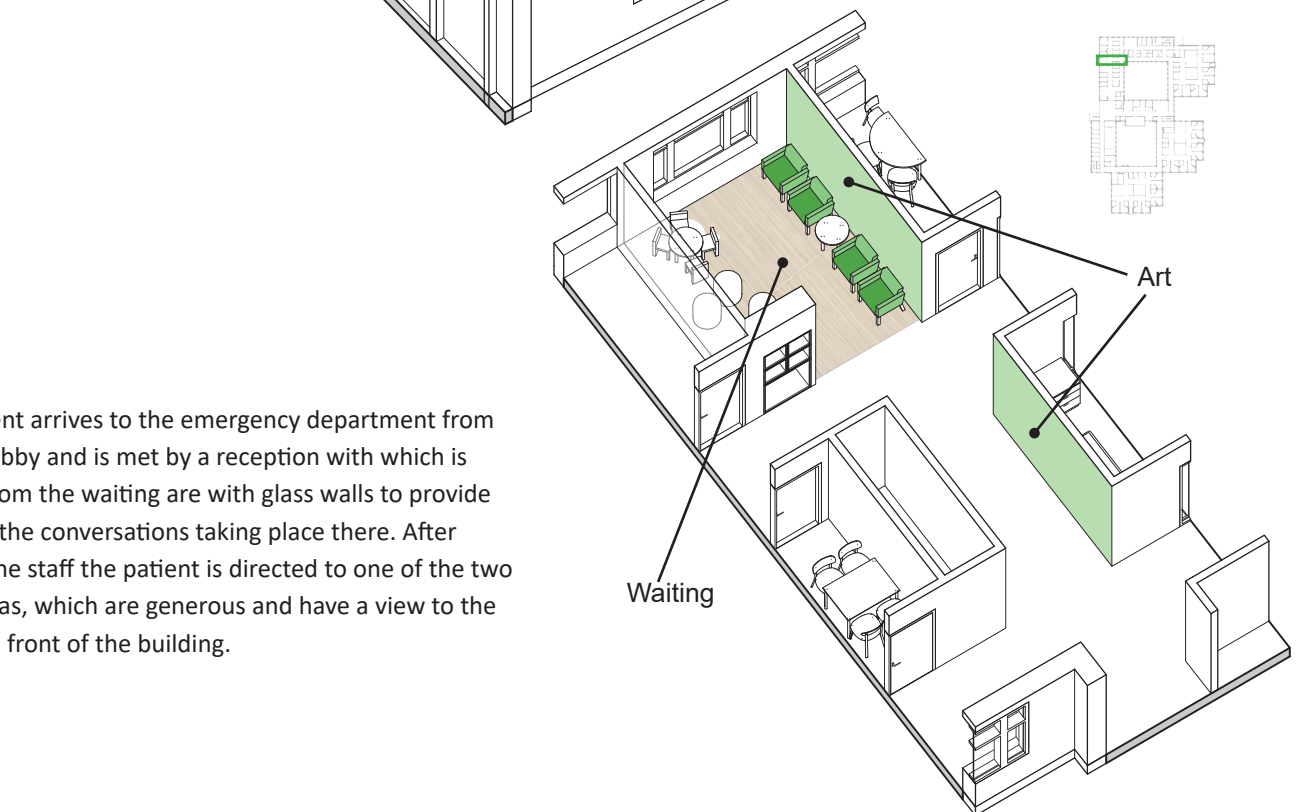
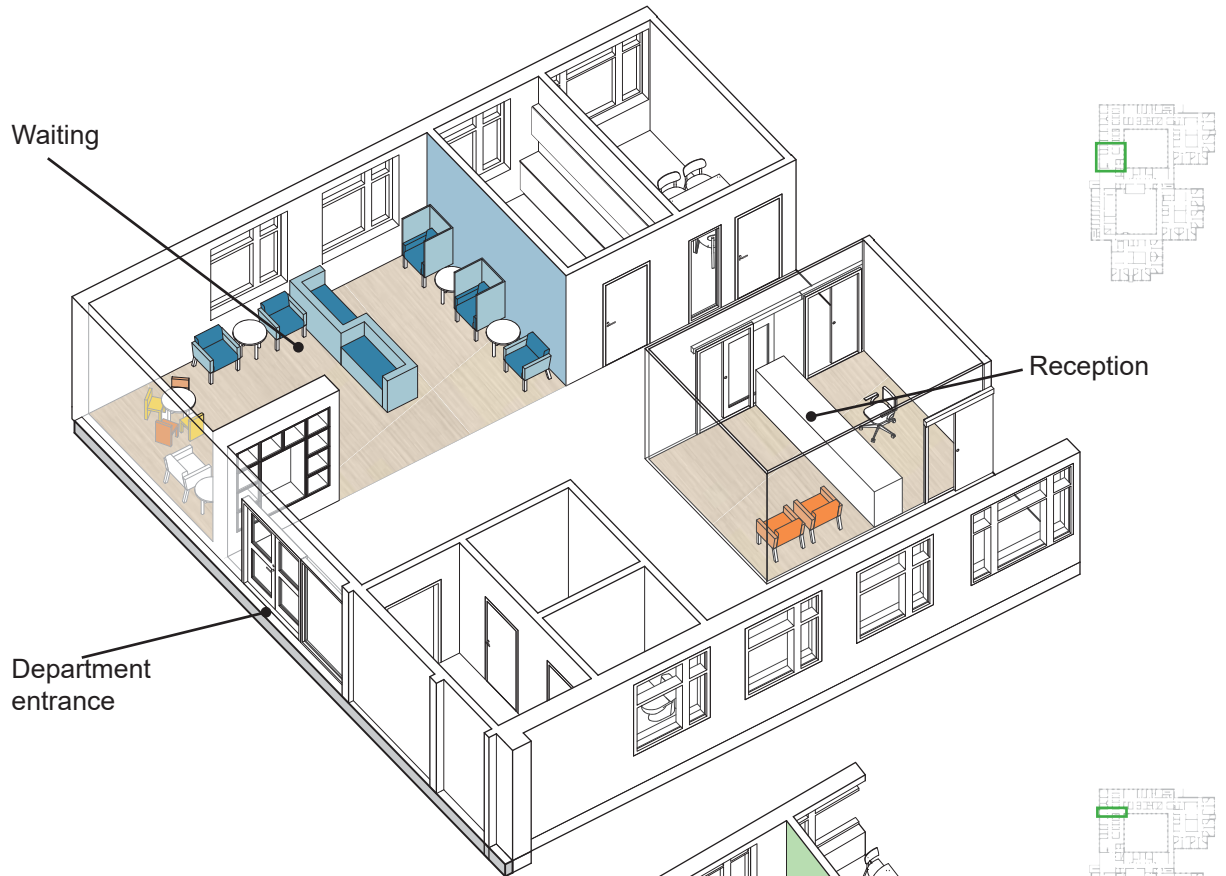


The outpatient department have a double corridor layout, with one of the corridors running along the facade for better access to daylight. The double corridor allows for some conversation rooms to be placed with access from to ways, minimizing the risk for staff to get cut off from the exit by aggressive patients. Through windows above and on the side of the doors the daylight reaches the corridor and makes it light. There is a window at the end of the corridors as well to give a relation to the outdoors and increase orientability.

Along the west facade there are counseling rooms, waiting areas and a room for relatives since they might have to wait in the department for quite some time.

The administrative work is done in an open office, closed off from patients. The open office in combination with the designated counseling rooms allow for the staff to use the areas suited for their present task.

Waiting areas



The patient arrives to the emergency department from the main lobby and is met by a reception with which is secluded from the waiting area with glass walls to provide privacy for the conversations taking place there. After talking to the staff the patient is directed to one of the two waiting areas, which are generous and have a view to the greenery in front of the building.

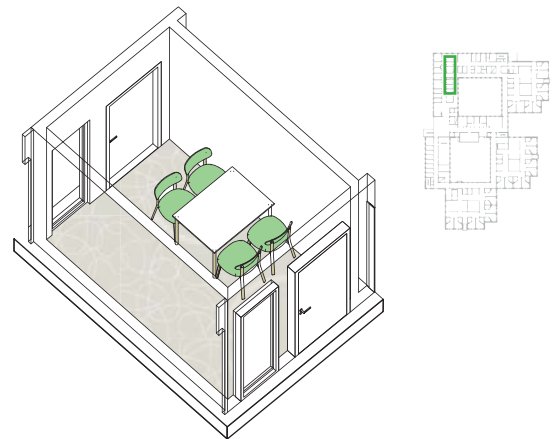
The inner waiting area in the emergency department. The waiting area is highlighted by the colored walls that are places for art

Counseling rooms

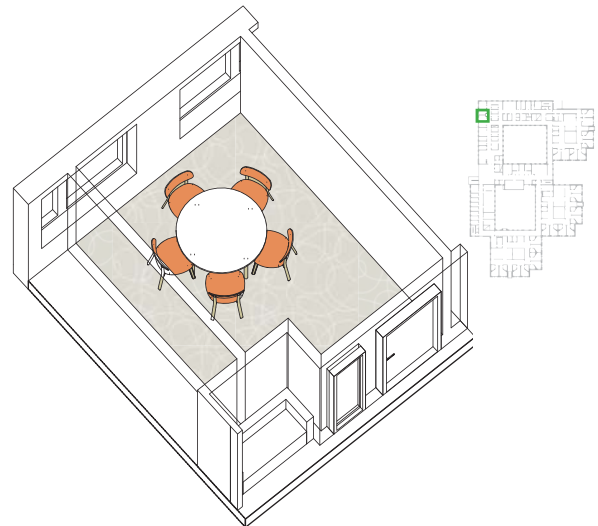
The meeting between patient and staff takes place in a room designated for conversation only. There are five different forms of counseling rooms:

- A small room with doors in two directions to eliminate the risk that the staff gets cut off from the exit.
- A small room with a view through a window.
- A bigger room with a round table that seats five for conversations with family or relatives.
- A bigger room with both a table and chairs and a group with more relaxed seating for family counseling.

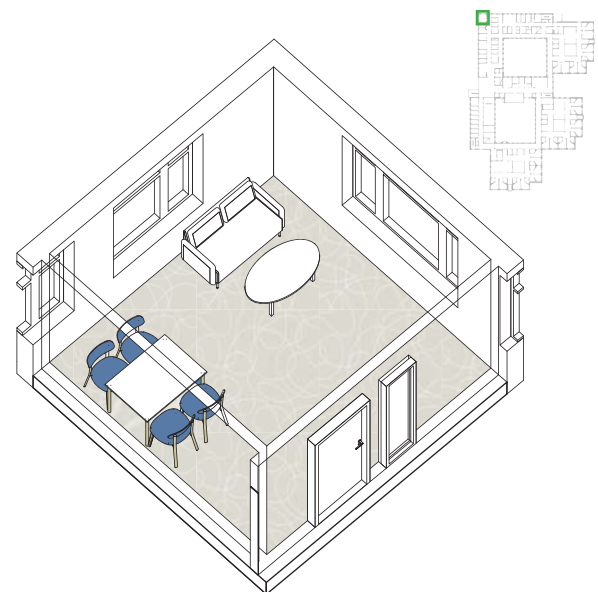
There is also a room for medical examinations.



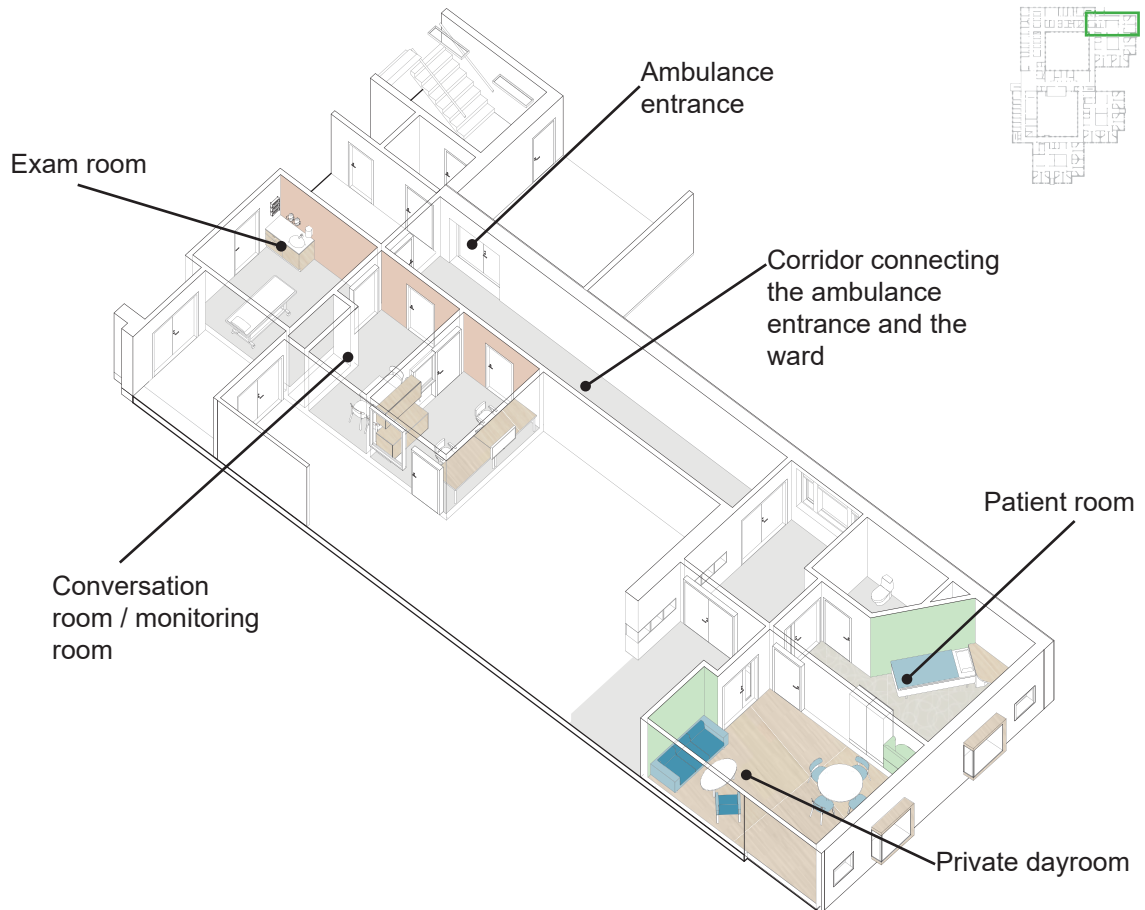
Small counseling room with two exits



Medium counseling room with a round table for conversations on equal terms.

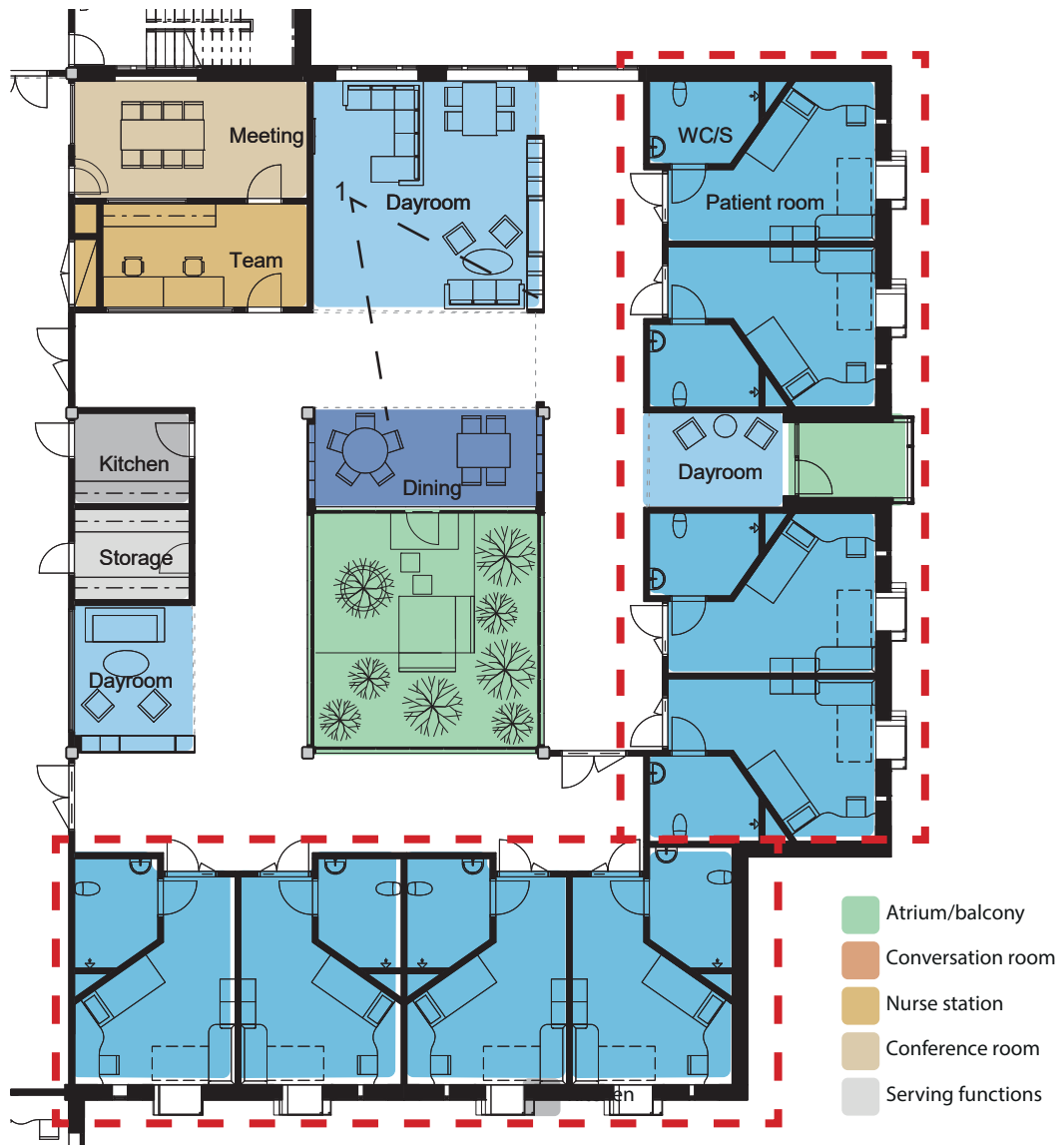


Big conversation rooms with different seating arrangements



The ambulance access the emergency department in the north-east corner of the building where the slope have climbed to the floor level. In connection with the ambulance access there is a counseling room, that can be viewed from the team station in the connecting ward; an exam room, and a corridor that leads straight to a patient room with an adjacent dayroom.

Ward unit



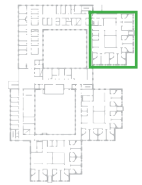
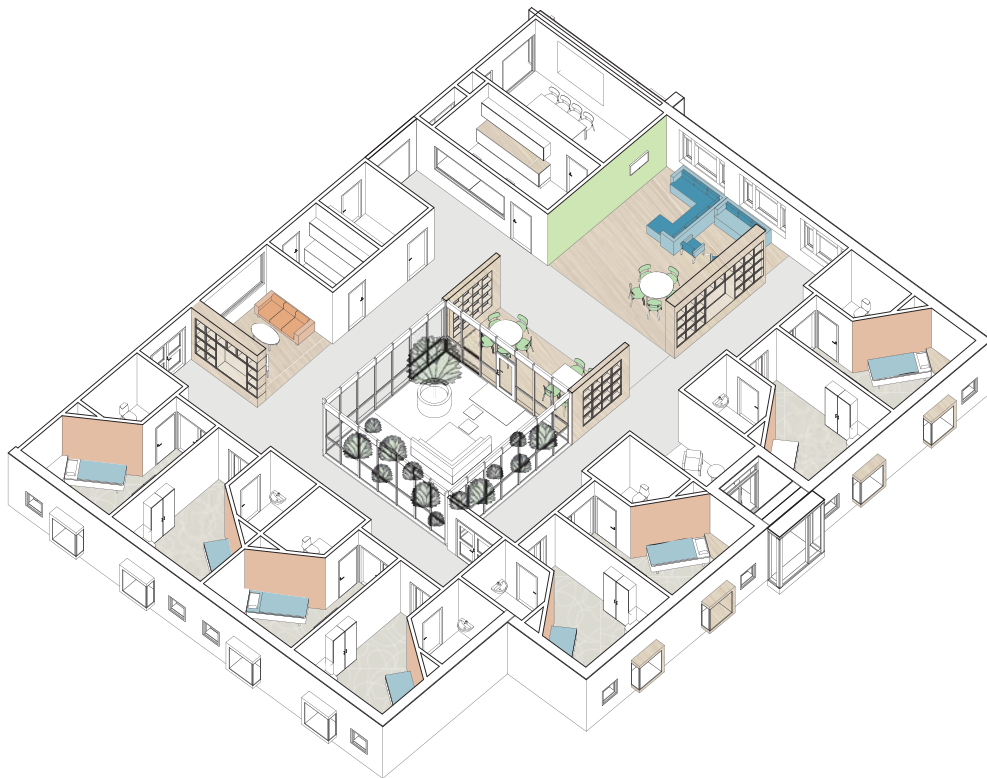
The standard ward unit consists of eight single patient rooms, two smaller dayrooms, a bigger dayroom and dining area. The service functions are a team station with a room for meetings, storage, and a kitchen.

The patient rooms are placed so they either face east or west, and each room has a bay window to maximize the daylight in the room.

In the center of the ward there is a small atrium with a glass roof and plants to bring both nature and daylight into the ward. The glazed atrium gives a good overview over the whole department.

The patient rooms are placed two by two with the possibility to divide the ward into smaller patient groups if necessary. There are two small dayrooms for four patients each and one big for all eight patients.

The doors to the patient rooms are placed to give an interesting view from the patient room with the door open instead of staring into a wall or another door which is common in corridor solutions.



View 1: Dayroom in the ward

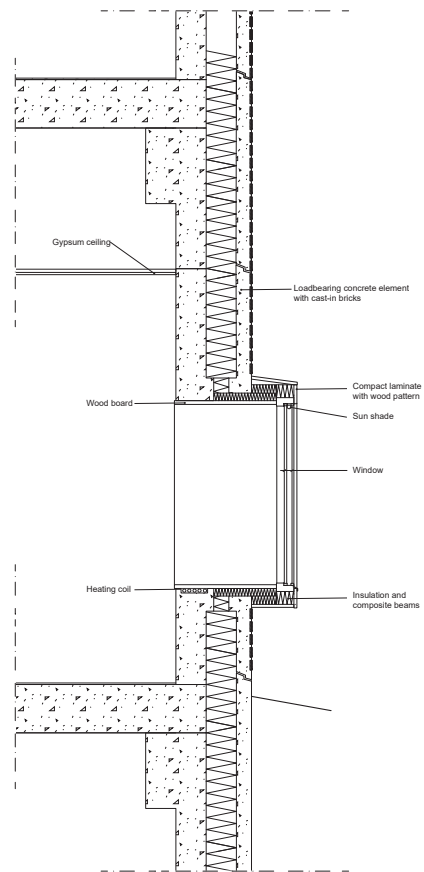
Design proposal

Patient room

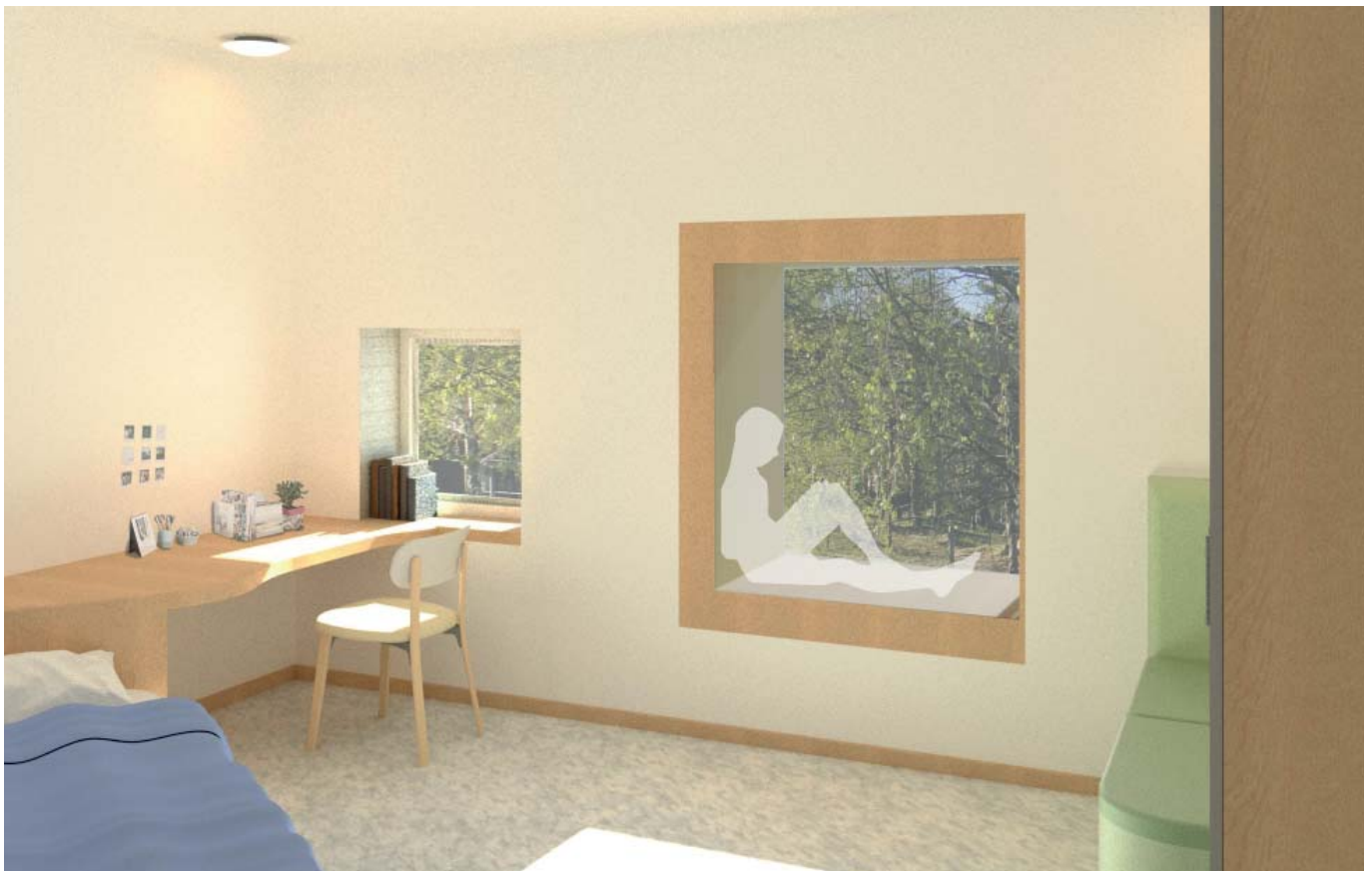
The patient room is a place for being alone, as well as with family and friends. The patient's bed is placed along the angled bathroom wall, with its head to a placebuilt desk/bed table. The room has two windows, one by the desk and a big bay window where the patient can sit and watch the nature outside.

The sofa is placed so that a person sitting in the window can have a conversation with someone in the sofa and it can be turned into a bed for relatives staying over.

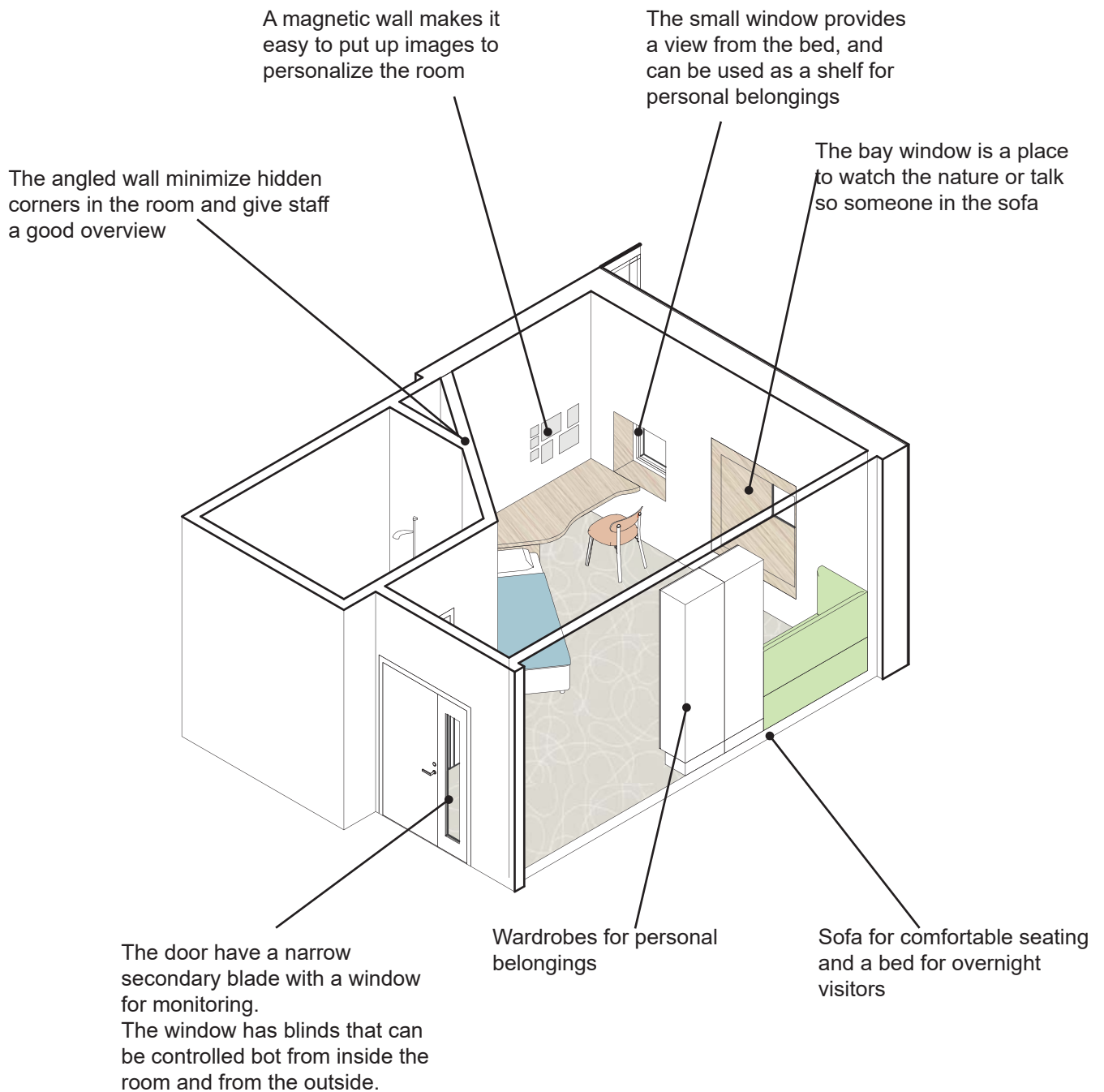
The detail drawing shows a section through the bay window.



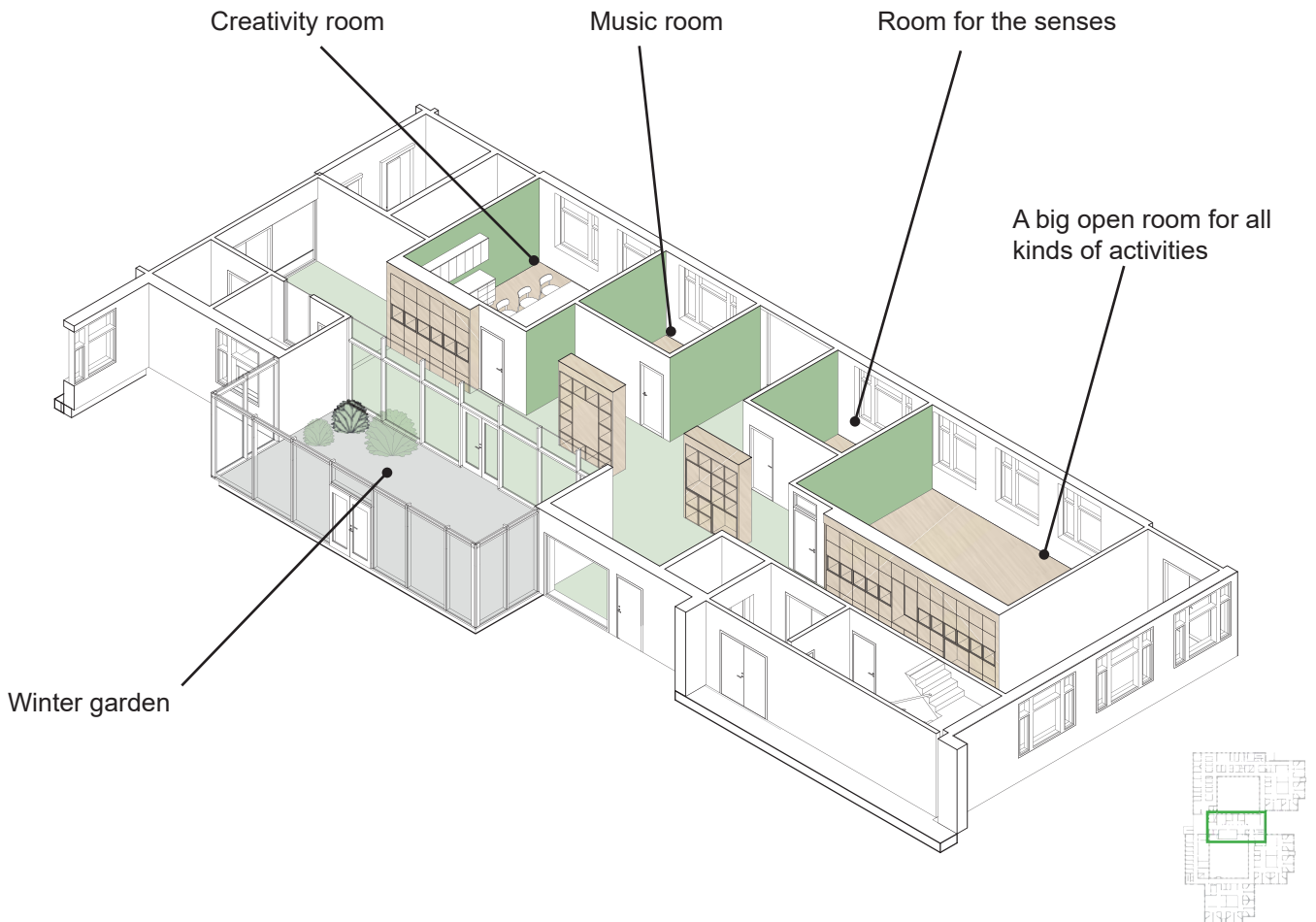
Bay window
Detail section 1:50 0 0,5 1 1,5 2 2,5
Meter



View of the patient room



Activity square

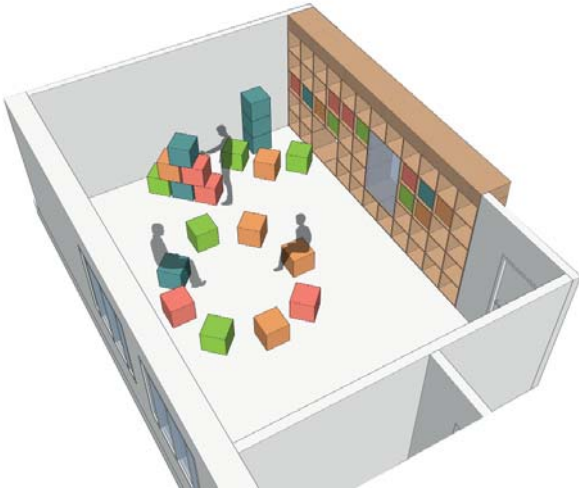


The activity square is a place for everyone who visits the building, not only patients in the wards. There are different kinds of activity spaces and access to both yards, as well as a winter garden to provide greenery even when there is none outside.

In the creativity room the patients can create art and do handicrafts that can then be displayed in the place built shelf in the wall, there is also a room for creating or listening to music.

The room for the senses is a place for stimulation of senses. Here the patient can listen to sea breeze, watch colorful light shows projected on the ceiling or cuddle up on a water bed under a heavy ball blanket.

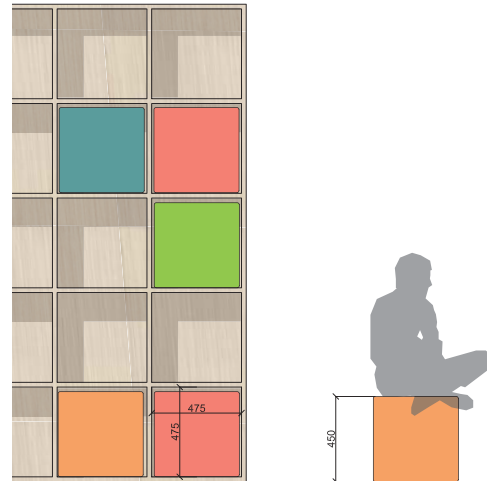
The big open room is a flexible space, the empty floor area is great for playing or dancing, but could also be used for group meetings of different forms



The patients can play around with how to color the walls by moving the poufs

The shelf walls in the activity center can be used for storing things in the creativity room, for sitting in in the corridor and in the big general room the wall is filled with colored light weight poufs. Those can be used as chairs, for building structures or just to recolor the walls.

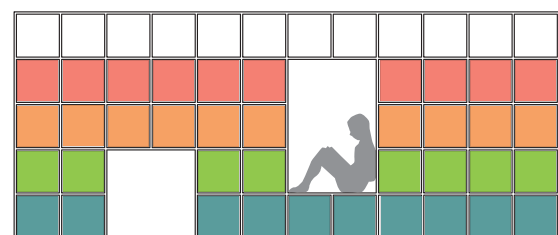
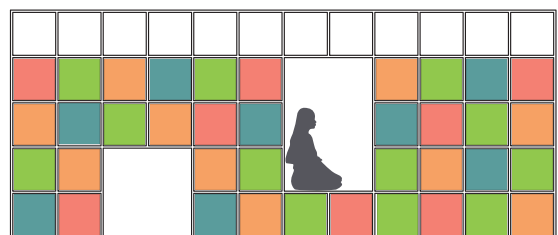
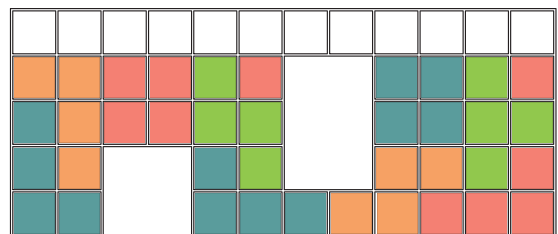
The walls are also found in the waiting areas in the outpatient departments and in the dayrooms in the wards.



The poufs are cube shaped and the right size to be used as chairs



Waiting room in the outpatient care



Day room in the ward

The patients can play around with how to color the walls by moving the poufs

Sections



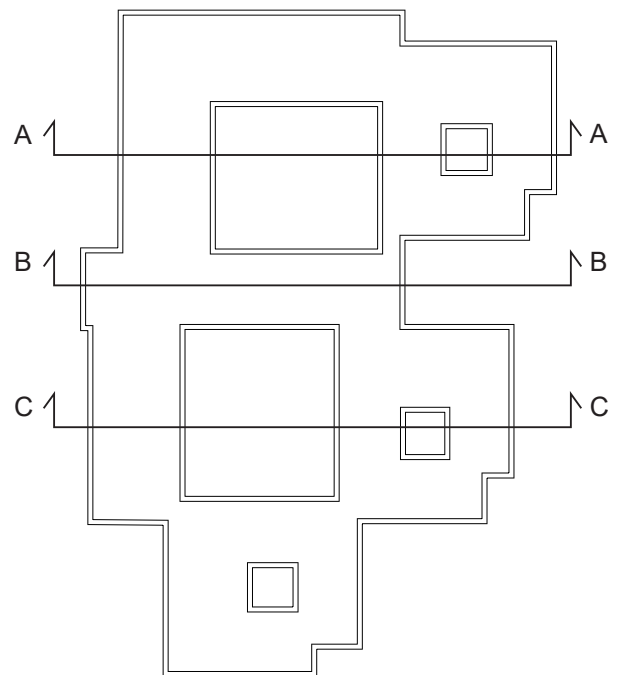
Section A-A 1-200

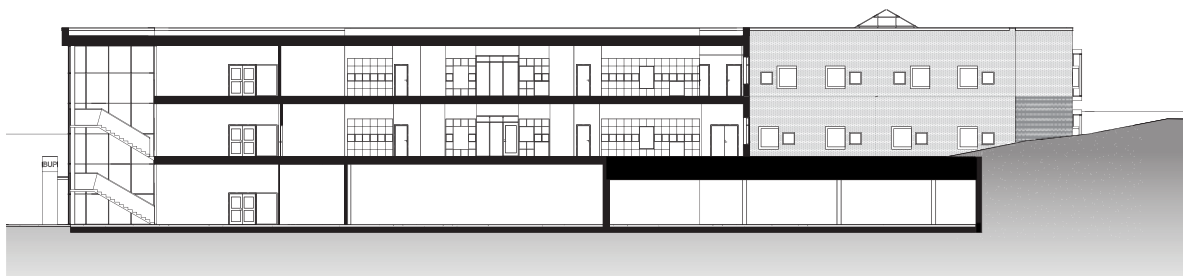
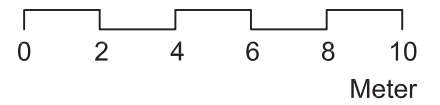
The floor to floor height of the building is 4,5 meter between the ground floor and the first floor to match with the topography. The height between the first and the second floor is 4 meter. The ground floor matches in height with the first floor in the new children's hospital, and the first floor is 0,3 meters below the second floor in that building, so a connection via sky walk is possible.

In section A-A a cut through the north yard is shown. It is terraced to bring daylight into the specialist outpatient care department. The section cuts the atrium in the ward as well, showing the glazing and the glass roof.

Section B-B show the stairs in the entrance room, and the corridor in the activity square.

Section C-C show the south yard, with the glazed winter garden in the south side of the activity center.

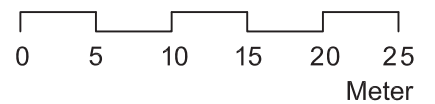




Section B-B 1-500



Section C-C 1-500



Facade

The building is built with pre-cast concrete elements. To give the new building a lighter expression than existing buildings in the area, this building will be clad with white exposed aggregate. To play with the element of window ribbons and create some variation in the facade the concrete between the windows will be terrazzo.

The facades on the wards are also concrete elements but with cast-in bricks to create some contrast from the rest of the hospital buildings.

The window placement is very regular, with just some a little wider windows. The frame for the smaller window is square, but then the glass is divided asymmetrically into four parts. The vertical mullion is wide enough to meet a wall to make the wall placement in the interior more free.

The sun shades on the west facade are colored glass to make the facade more exiting as the color and patterns on the walls will change in a sunny day.



Figure 42. Concrete with exposed aggregate. (Finja)



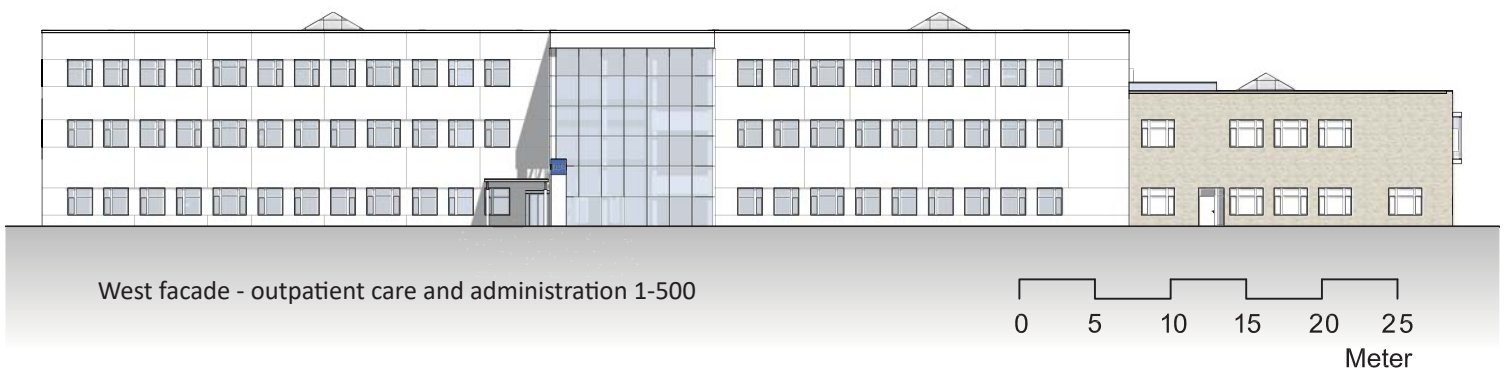
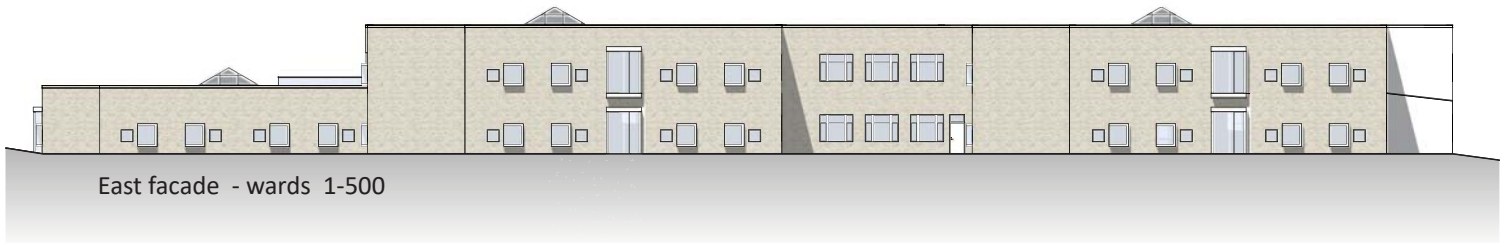
Figure 44. White terrazzo
Photo taken by the author



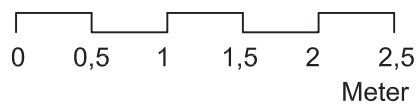
Renders showing the effect of the colored sun shades



Figure 43. Light colored bricks cover the facades of the wards. (Petersen Teg)



Facade detail 1:50



Conclusion

Conclusion

Did I answer my question?

How can we design healing environments for children and youth in psychiatric care?

To design a healing environment, there are many things to consider, and some of them might even contradict each other. Since my design will not be built there is no way to say for sure that it would be a healing environment but, based on my studies, I dare say that it probably would be.

To put together a complex program and the design of a healing environment has been hard, and there have been compromises on both sides to make it work. If the project were to be realized there would be even more compromises since the economy would weigh in much more than it has so far.

My design proposal is not an extremely visionary or in any way an extreme proposal, but a proposal that I think would work. In the design I have shown how you can implement some theories into building design while working with a complex program.

The criteria I put together from the literature study and reference projects can hopefully be used as an inspiration for other, maybe for the pre-study for BUP, or in some master thesis in the future.

Reflection

Designing for psychiatry

To design for psychiatry was a real challenge. It is a department that is very different from other kinds of healthcare, and there are truly many things to think about. Safety is an important topic in these environment, both for patients and for staff. I have worked with this by putting some counseling rooms with multiple escape ways, putting the angled wall in the patient room and by working with good overview in all parts of the building.

During the meetings with the staff I learned that it is very hard to eliminate all things that a patient could hurt her-/himself with if she/he wants to. I wanted to have a more open entrance hall, with a big area open through all floors, but I had to glaze it to take away the risk of people jumping. In the activity square I had a similar idea, but the staff saw big risks with this and I chose to change it. There were some concerns about the shelf system as patients might climb on them and dive into the floor, but they thought the benefits of the playful element outweighed the drawbacks.

In psychiatry there is also the question about compulsory treatment. In my proposal there is a ward with fewer patient rooms, that have access to the yard through a corridor that could be locked off, so that patients with an escape risk can be placed in that ward, and have access to the yard during certain times of the day, when all exits can be locked. By this they could be given as much freedom as possible. In the ward they would always have access to the small atrium with some greenery, and the glazed balcony to be outdoors even if the yard is not open to them.

To fit into a context

It was important for me in this project that the building fit naturally in the existing building stock in Östra Sjukhuset.

In the sketching process I did some tests with organic or soft shapes, but it looked unnatural to me in the strict orthogonality of the rest of the hospital, and in the end I decided to go with a straight shape, but a bit broken up on one side. The facades were very difficult to me, as you can be so free when you design a facade, so to put up some guidelines based on the design of surrounding buildings made it easier to get to a design I felt content with.

The process

When I started this project my idea was to make a project mainly based on evidence-based design, with some case-studies as inspiration and an analysis of Östra Sjukhuset as a base for the building form. When the literature study started though I realized that the approach of evidence based design that I had had in mind in the beginning might not give me so much and that I would have to search for other theories as well. The theories I found are more subjective, but some with evidence that support them as well, and I think the theories I've chosen to work with can give me arguments for the decisions that have been made.

Since I have been sketching parallel to my research, things have changed a bit over time, and sketching and research have influenced each other. When I read about a study for example that said that the stay in hospital could be shortened by several days if a patient stayed in a room that got direct sunlight compared to a room that lay in shadow all day, I went from a layout that I though functioned well for the interior flows, and tried to rework it, which later became the design I have now.

When planning for my master thesis I put up as a goal to work 40 hours per week, not more and not less. I started the semester with the flu, so I got a really bad start, but after that I picked it up and by midterm I was on track again. After midterm I had a really hard time to pick it up again, and therefore the last weeks before hand-in had longer hours than I would have wanted, but overall I am pleased with how I managed my time.

If I would have done anything different I would have stopped working on the floor plans earlier to get deeper into the details of the building. Now I am quite happy with my floor plans, which I would not have been otherwise, but I did not reach the level of detail I imagined I would.

During the semester I've had many discussions with other students, both regarding my project, but also about theirs and I feel that this has helped me forward. By talking to others I was forced to put words on all my ideas, and by explaining to other I also realized what made sense in a whole other way than if I had been alone with my own mind.

The relevance of the master thesis

To find a master thesis topic that is relevant to the world outside of school can be a big challenge. A topic related to an actual project was a way for me to anchor my project in reality and to feel that the master thesis will be of use for someone other than myself.

In the meetings with the group at Östra Sjukhuset I have realized that architects think that non-architects understand much more than they actually do. When presented with a proposal for a building by an architect, a person without detail knowledge about buildings or reading drawings most often assume that it is good, and can not see any alternatives. Since I have made my proposal parallel to a proposal for the pre-study made by another architect, this has given the staff two proposals to look at and see the differences between the two. There have been occasions when one of us have presented an idea and the work group liked it, but when the other presented another interpretation they found that approach better, or maybe the both combined would work.

References

- Barn och ungdomspsykiatri, Stockholms läns landsting (2015a) *Fakta om BUP - Tema tonåringar*. Retrieved from http://www.bup.se/globalassets/bilder/om-bup/publicerat/fakta-om-bup/rapport_bup_slutgiltig.pdf
- Barn och ungdomspsykiatri, Stockholms läns landsting (2015b) *Riktlinjer till stöd för bedömning och behandling 2015*. Retrieved from <http://bup.sidvisning.se/bupriktlinjer2015/html5/index.html?&locale=SVE&pn=21>
- Beauchemin, K., Hays, P. (1996) Sunny hospital rooms expedite recovery from severe and refractory depressions. *Journal of affective disorders*, 40 Issue 1, 49-51. Retrieved from <http://www.sciencedirect.com/science/article/pii/0165032796000407>
- Bengtsson, A., Grahn, P. (2014) Outdoor environments in healthcare settings: A quality evaluation tool for use in designing healthcare gardens. *Urban forestry & Urban Greening*, 3, 878-891. Retrieved from http://ac.els-cdn.com/S1618866714001022/1-s2.0-S1618866714001022-main.pdf?_tid=b784a2d4-e3bc-11e6-8e3d-00000aacb35f&acdnat=1485431215_d38cc873edb28169da71d9b3b2e1df7b
- Cederblad, M (2013) Ungas psykiska hälsa förbryllar forskare. *Läkartidningen*, 36. Retrieved from <http://www.lakartidningen.se/Klinik-och-vetenskap/Klinisk-oversikt/2013/09/Ungas-psykiska-halsa-forbryllar-forskare/>
- Fagerberg Moss, H. (2014) *Liten blir stor - om barnets utveckling och behov*. [PDF-presentation] Retrieved from <https://www.chalmers.se/sv/institutioner/ace/kalendarium/Sidor/Rum-f%C3%B6r-att-l%C3%A4ka-och-leka.aspx>
- From, L., Lundin, S. (2009) *Arkitektur som medicin: arkitektens betydelse för behandlingsresultat inom psykiatri*. Uppsala: ARQ - Stiftelsen för Arkitekturforskning
- Godt Sygehusbyggeri (2017) *Helende arkitektur - psykiatrisygehuset i Slagelse*. Retrieved from <http://www.godtsygehusbyggeri.dk/Inspiration/Erfaringer/HELENDE%20ARKITEKTUR%20PSYKIATRISYGEHUSET%20I%20SLAGELSE.aspx>
- Golembewski, J.A. (2010) *Start making sense: Applying a salutogenic model to architectural design for psychiatric care*. *Facilities*, 28 (3/4), 100-118. Retrieved from <http://emeraldinsight.com/toc/f/28/3%2F4>
- Lambe, S. (2013) *Psykiatrins hus får hård kritik av patienter*. Uppsala Nya Tidning Retrieved from <http://www.unt.se/nyheter/uppsala/psykiatrins-hus-far-hard-kritik-av-patienter-2417702.aspx>
- Liljewall Arkitekter () *Rågården Rättspsykiatri*. Retrieved from <http://www.liljewall.se/ragarden>
- Lundin, S. (2015) *Healing Architecture: Evidence, Intuition, Dialogue*. (Licentiate thesis, Chalmers University of Technology, Department of Architecture)
- Karlsson arkitekter () *Nyt psykiatrisygehus i Slagelse*. Retrieved from <http://www.karlssonark.com/nyt-psykiatrisygehus-i-slagelse/>
- Fagerberg Moss, H. (2014) *Liten blir stor - om barnets utveckling och behov*. (Slideshow) Retrieved from <https://www.chalmers.se/sv/institutioner/arch/kalendarium/Sidor/Rum-f%C3%B6r-att-l%C3%A4ka-och-leka.aspx>
- Nordström, M. (1990) Barns boendeföreställningar i ett utvecklingspsykologiskt perspektiv. (SB:30) Gävle: Statens institut för byggnadsforskning.
- Pelander, T., Leino-Kilpi, H. (2010) Children's best and worst experiences during hospitalisation. *Scandinavian Journal of Caring Sciences* 726-733. Retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1471-6712.2010.00770.x/epdf>
- Rasmussen, K. (2004) Places for children - Childrens places. *Childhood*. 11, Issue 2, 155 - 173. Retrieved from <http://journals.sagepub.com/doi/pdf/10.1177/0907568204043053>
- Riksförbundet hjärnkoll (?) *Om psykisk ohälsa*. Retrieved from: <http://www.nsph.se/hjarnkoll/om-psykisk-ohalsa/>

Socialstyrelsen (2016) *Tillståndet och utvecklingen inom hälso- och sjukvård samt tandvård: Lägesrapport 2016*. Retrieved from: <http://www.socialstyrelsen.se/Lists/Artikelkatalog/Attachments/20105/2016-3-16.pdf>

Ulrich, R. S., Zimring, C., Zhu, X., DuBose, J., Seo, H-B., Choi, Y-S., Quan, X., and Joseph, A. (2008) *A Review of the Research Literature on Evidence-Based Healthcare Design*. *Health environments research and design*, 1(3), 101-165 Retrieved from <http://search.proquest.com/docview/229984166?pq-origsite=summon>

Ulrich, R (2012) *Evidensbas för vårdens arkitektur 1.0: Forskning som stöd för utformning av den fysiska vårdmiljön (CVA 2012:1) Centrum för Vårdens Arkitektur*. Retrieved from <http://www.chalmers.se/sv/centrum/cva/nyheter/Sidor/evidensbas.aspx>

Västra götalandregionen (2011) *Östra Sjukhuset - Byggnadsplan 2011*. Göteborg

Västfastigheter (2014) *Östra sjukhuset framtidens hållbara sjukhusområde*. hämtad från <http://www.boverket.se/contentassets/b20b117cc1b94cd1925fd56a4e9eb266/slutrapport-ostra-sjukhuset---framtidens-hallbara-sjukhusomrade.pdf>

White arkitekter () *Pyskiatrins kvarter Södra Älvsborgs Sjukhus*. Retrieved from <http://www.white.se/projects/psykiatrins-hus/>

List of figures

All figures not listed here are owned and produced by the author.

Photos taken in the hospital area in Östra Sjukhuset have been taken with permission from Västfastigheter.

Figure 1. The supporting triangle. Based on an illustration in Outdoor environments in healthcare settings: A quality evaluation tool for use in designing healthcare gardens. (Bengtsson & Grahn 2014) Page: 13

Figure 2. Section illustrating how the gradient can look like in a building. Made by the author Page: 13

Figure 3. The psychiatric clinic at Östra Sjukhuset Source: white.se <http://www.white.se/projects/vardbyggnad-for-akutpsykiatri-ostra-sjukhuset/> Page: 20

Figure 4. Atrium in the ward unit Source: white.se <http://www.white.se/projects/vardbyggnad-for-akutpsykiatri-ostra-sjukhuset/> Page: 20

Figure 5. Floor plan over the wards From, L., Lundin, S. (2009) *Architecture as medicine*. Retrieved from: http://www.white.se/app/uploads/2013/01/Architecture_as_Medicine.pdf Page: 21

Figure 6. Yard in the psychiatric clinic White architects. Retrieved from: <http://www.white.se/projects/vardbyggnad-for-akutpsykiatri-ostra-sjukhuset/> Page: 21

Figure 7. Illustration of the ward layout. Made by the author. Page: 22

Figure 8. Small day room in the ward unit White Architects. Retrieved from: <http://www.white.se/projects/vardbyggnad-for-akutpsykiatri-ostra-sjukhuset/> Page: 23

Figure 9. Main entrance to Psykiatrins hus. Åke E:son Lindman. Retrieved from: <https://tengbom.se/project/arkitektur-som-avdramatiserar-psykisk-sjukdom/> Page: 24

Figure 10. Main entrance to Psykiatrins hus. Vårdbyggnadswiki. Retrieved from: <http://wiki.portal.chalmers.se/Vardbyggnadswiki/pmwiki.php/Vbw/Fvbw2013-11-17223218> Page: 24

Figure 11. Floor plan from the competition proposal by Tengbom Architects. Retrieved from: <https://www.arkitekt.se/tavling/psykiatrins-hus-i-uppsala/> Page: 25

Figure 12. A view of the building showing the balconies in the patient rooms. Åke E:son Lindman. Retrieved from: <https://tengbom.se/project/arkitektur-som-avdramatiserar-psykisk-sjukdom/> Page: 25

Figure 13. Illustration of the ward layout Page: 26

Figure 14. The main atrium in psykiatrins hus Åke E:son Lindman. Retrieved from: <https://tengbom.se/project/arkitektur-som-avdramatiserar-psykisk-sjukdom/> Page: 27

Figure 15. Slagelse Psykiatrisygehus architectural-review.com Retrieved from: <https://www.architectural-review.com/buildings/the-new-psychiatric-hospital-in-slagelse-by-karlsson-and-vla-presents-a-bold-future-for-the-entire-type/10014048.article> Page: 28

Figure 16. Atrium by the main entrance Karlsson Arkitekter. Retrieved from: <http://www.karlssonark.com/nyt-psykiatrisygehus-i-slagelse/> Page: 28

Figure 17. Structural plan for the psychiatric hospital in Slagelse Karlsson Arkitekter. Retrieved from: <http://www.karlssonark.com/nyt-psykiatrisygehus-i-slagelse/> Page: 29

Figure 18. Floor plan for patient rooms Karlsson Arkitekter. Retrieved from: <http://www.karlssonark.com/nyt-psykiatrisygehus-i-slagelse/> Page: 29

Figure 19. Illustration of the ward layout Page: 30

Figure 20. Yard between the ward units Architectural review. Retrieved from: <https://www.architectural-review.com/buildings/the-new-psychiatric-hospital-in-slagelse-by-karlsson-and-vla-presents-a-bold-future-for-the-entire-type/10014048.article> Page: 31

- Figure 21. Render of Sofieskolen
Archdaily. Retrieved from: <http://www.archdaily.com/784811/creo-and-jaja-to-design-home-for-children-with-autism-near-copenhagen>
Page: 32
- Figure 22. Section of the common areas
Archdaily. Retrieved from: <http://www.archdaily.com/784811/creo-and-jaja-to-design-home-for-children-with-autism-near-copenhagen>
Page: 32
- Figure 23. Render of corridor
Archdaily. Retrieved from: <http://www.archdaily.com/784811/creo-and-jaja-to-design-home-for-children-with-autism-near-copenhagen>
Page: 32
- Figure 24. Exploded sketch of the building
Archdaily. Retrieved from: <http://www.archdaily.com/784811/creo-and-jaja-to-design-home-for-children-with-autism-near-copenhagen>
Page: 33
- Figure 26. Main entrance to the hospital with the central clinic towering above
Photo taken by the author
Page: 36
- Figure 27. Top right: The central clinic. Photo taken by the author
Page: 36
- Figure 28. Bottom right: The children's clinic. Photo taken by the author
Page: 36
- Figure 25. Östra Sjukhuset in Gothenburg
Illustration by the author
Page: 36
- Figure 31. Views over Östra Sjukhuset Västra Götalandsregionen (2011) *Östra Sjukhuset Byggnadsplan 2011*.
Page: 38
- Figure 29. The high, modernistic buildings Göteborgsposten. Retrieved from: [http://www.gp.se/image/policy:1.89025:1462594807/image.jpg?f=Wide&w=1200&\\$p\\$f\\$w=834285a](http://www.gp.se/image/policy:1.89025:1462594807/image.jpg?f=Wide&w=1200&pf$w=834285a)
Page: 38
- Figure 30. The psychiatric clinic at Östra Sjukhuset
Photo taken by the author
Page: 38
- Figure 32. Main entrance to Östra Sjukhuset.
Photo taken by the author
Page: 39
- Figure 33. Entrance to the children's hospital.
Photo taken by the author
Page: 39
- Figure 34. Entrance to the psychiatric clinic.
Photo taken by the author
Page: 39
- Figure 35. Traffic flows in Östra Sjukhuset
Illustration by the author
Page: 39
- Figure 36. Vision for future expansion of Östra Sjukhuset Västra Götalandsregionen
Page: 40
- Figure 37. Östra sjukhuset ca 2025 Västra Götalandsregionen
Page: 40
- Figure 38. Östra Sjukhuset 2030, with an addition the central clinic (1), an addition to the children's clinic (2) and a new service building (3) in the north. Västra Götalandsregionen
Page: 40
- Figure 39. A vision for how the hospital area might develop in the future with many new buildings and a high tech area in the middle of the hospital
Source: Västra Götalandsregionen
Page: 40
- Figure 40. The low building to the left is the building for BUP in Östra Sjukhuset today.
Photo taken by the author
Page: 41
- Figure 41. Main entrance to BUP
Photo taken by the author
Page: 41
- Figure 42. Concrete with exposed aggregate.
Finja. Retrieved from: http://www.finja.se/App_Resource/Page/image/prefab/ytor/standard/vit-marmorkross-gra.jpg
Page: 70
- Figure 43. White terazzo
Photo taken by the author
Page: 70
- Figure 44. Light colored bricks cover the facades of the wards.
Petersen Tegl. Retrieved from: <http://www.petersen-tegl.dk/visualisering/>
Page: 70